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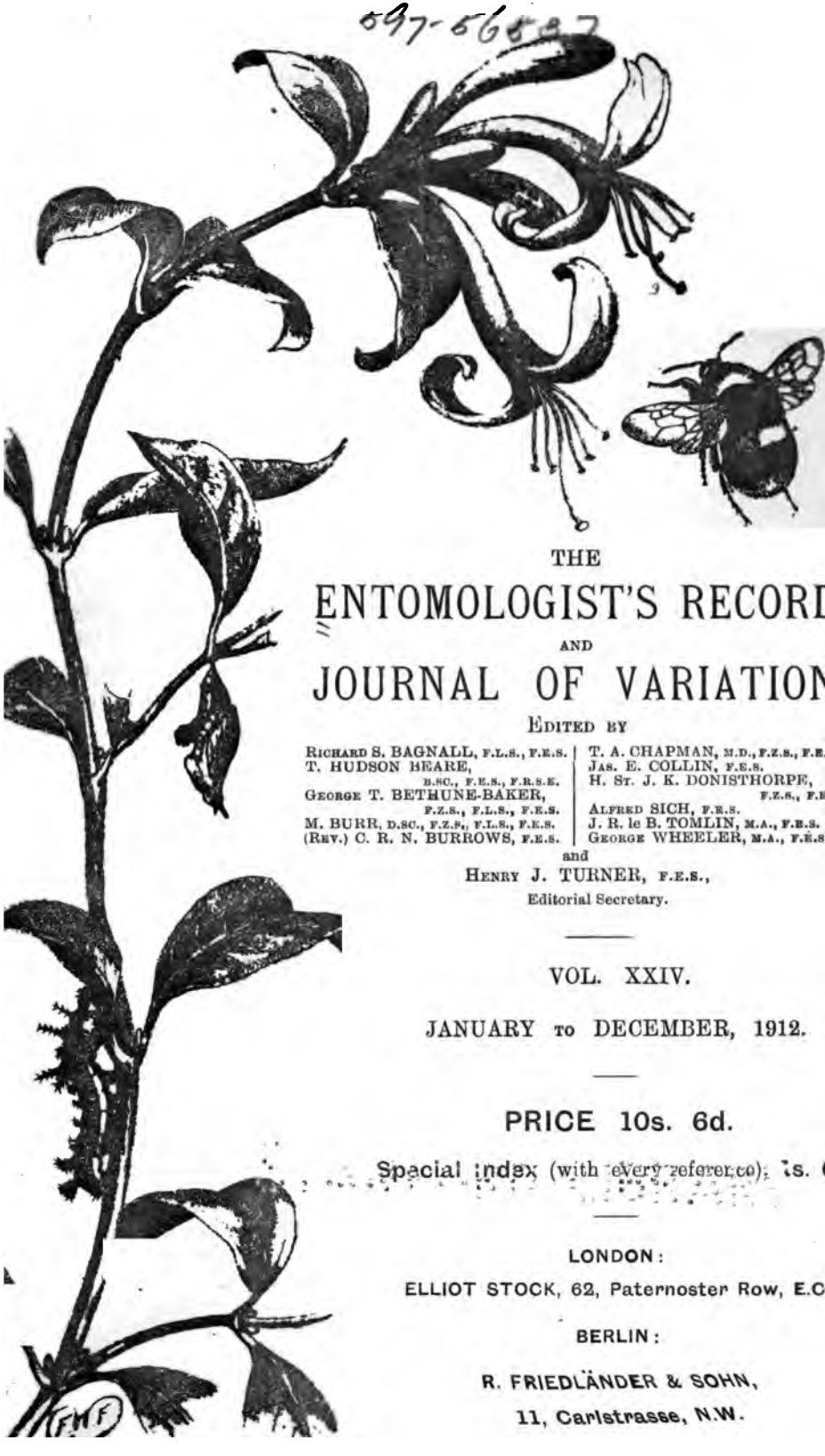
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THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

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PREFACE.

In wishing our readers and contributors the compliments of the season we would also like to thank those who have helped with the varied matter which our pages contain. The Magazine continues to hold its own and the contributors are to be heartily thanked for their kindly aid in making the contents both instructive and interesting.

It will be noted that the Index, like that of last year, is somewhat different in its plan to those of previous years. We owe this to our colleague Mr. J. R. le. B. Tomlin, who most kindly took this matter in hand and considerably simplified the somewhat cumbrous and redundant arrangement of the previous indexes.

We would still like to urge our readers from little-known localities to give us their experiences; there are many parts of the British Isles from which few or no records of the insect fauna exist.

Hy. J. Turner.

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The Entomologist's Record
AND
JOURNAL OF VARIATION.

VOL. XXIV. No. 1. JANUARY 15TH, 1912.

Eryx fairmairei, Reiche, a Beetle new to Britain.

By H. St. J. K. DONISTHORPE, F.Z.S., F.E.S.

On July 11th, 1908, I found under loose bark in Sherwood Forest several specimens of an *Eryx;* three were taken and one other fell to the ground and escaped. Larvæ also occurred under the bark. I wanted one specimen of *Eryx ater* to complete my series, and when I put one of the Sherwood specimens into my cabinet, I was struck with the difference in appearance it showed to my other specimens, being more parallel, much more shiny, with shorter and thinner antennæ and legs. I always intended to go into the matter, and whenever I opened the drawer the *Eryx* was in I always thought I must settle that *Eryx*. I once went to the museum, but in the general collection they only had *ater*. At last I sent my specimen to Captain Claire Deville and he returned it as *Eryx fairmairei*, Reiche. He writes, that compared with *ater* it is a very distinct species, especially in the structure of the prosternum and the punctuation. He suggests that the German *E. melanarius*, Germ., may be the same species. He says that Seidlitz's description of *fairmairei* is inaccurate.

In the European Catalogue the synonymy of the three species is :

ater, F. (*subsulcatus*, Fairm.)
melanarius, Germ. (*laevis*, Rosh.)
fairmairei, Reiche (*laevis*, Seidl.)

Seidlitz (*Fauna Baltica*, 1891, p. 524), queries *fairmairei*, Reiche, as the same species as his *E. laevis*.

Reiche described (*Ann. Soc. Ent. France*, 1860, p. 731) *fairmairei* as follows :—"The collections of Paris contain a third species of *Eryx* found in the centre of France, the Pyrenees and the Landes, which is shining like *E. bellieri*, and of the same size, it differs by its less elongate form, the well marked striæ of the elytra, and the more acute posterior angles of the thorax."

Deville says *E. fairmairei* occurs in France as far north as the Forest of Fontainebleau.

Mr. Champion tells me that all his Sherwood Forest specimens of *Eryx* are *E. fairmairei*, and those from the New Forest are *E. ater*.

It is very pleasant to be able to introduce such a large and distinct species to our list.

A Month in Switzerland and elsewhere.

By GEORGE WHEELER, M.A., F.Z.S., F.E.S.

(*Continued from vol. xxiii., page 314.*)

(vii.) THE MEIENTHAL.—Some years ago Mr. Fison took in the Meienthal some ♀ specimens of *Brenthis selene* shot with purple in the same manner as the ♀ var. *napaea* of *B. pales*, and ever since I saw these I had desired to try my luck in the same direction. The entrance to the Meienthal is just above the village of Wassen, the last station on the St. Gothard Pass before Göschenen, and though it sounds easy enough to get at, I had never hitherto been able to manage it. I found however that by sleeping at Goldau on our way eastwards, it was possible to snatch a passing visit, sending heavy luggage direct to Bergün, and depositing smaller things at Goldau on the way through, continuing by the same fast train from Bâle as far as Göschenen, getting lunch at the buffet, and immediately afterwards taking the slow train back to Wassen. As soon as I emerged from the steep gorge into the valley I found a ♂ *B. selene* and further on several others, all very dark and raising expectations of the purple-shot ♀ s, but I was doomed to disappointment, for not a single ♀ was forthcoming during the short time I was able to remain in the valley. On the way up *Erebia euryale* and *Pararge maera* were common, especially the former, the numbers of which did not diminish as one penetrated into the valley, where it was joined by *E. stygne* also in some numbers, and by a few *E. melampus*. There was nothing remarkable about the latter, nor about *E. euryale*, but *E. stygne* was of a very pronounced *valesiaca* form, the small white pupils of the two apical eye-spots being the only conspicuous marking even in the ♀. Here again the ♀ s were more worn than the ♂ s, though most of the latter were not in first class condition. The best part of the valley seemed to begin where the path crosses the torrent, but I had not time to penetrate much further. *Brenthis euphrosyne* was common but worn; unlike *B. selene* it was not as dark as the mountain specimens usually are. *Chrysophanus hippothoë*, var. *eurybia*, was common and fresh, but *Loweia subalpina* was only represented by a single ♂; there were also a few *Coenonympha arcania* var. *darwiniana*, and *C. satyrion;* and one of the latest ♂ s of *Euchloë cardamines*, and one of the earliest of *Brenthis amathusia* complete the list.

(viii.) ALTMATT.—The illness of my travelling companion altered our plans next day, July 6th, but as Goldau is emphatically not a place to be ill at, I felt that by the evening a push must be made as far as Weesen at any rate; and meantime, finding that I was of no use where I was, rest only being required, I decided to put in an hour and a half at Altmatt below Einsiedeln, as I had never before had any personal experience of the peat-bogs. On arriving at the station I took the first turn upwards across the wolds, and my short expedition convinced me that even in a bad year there was a good deal to repay investigation. Only three species appeared to be really common, and all of them were Cœnonymphids—*Aphantopus hyperantus*, *Coenonympha typhon* and *C. pamphilus*. The last named was rather small and dark, the other two much like those of Hinterzarten; but *C. typhon* was on the whole rather more spotted, especially on the underside of the forewing, and *A. hyperantus* even smaller, the ♀ underside being of a beautiful light

dead-gold colour. Two other species were in fair numbers, *viz.*, *Melitaea dictynna*, much smaller, and the ♀ with much more of the ground colour showing, than those of Hinterzarten, and *Plebeius argus* (*aegon*), rather small, the ♂ s of a dusky grey on the underside, and showing much greenish-blue suffusion extending almost half across the hind-wing. Samples of several other species turned up in the very short time at my disposal, *viz.*, *Melitaea athalia*, rather small, *M. aurinia*, of course much dilapidated at this date, *Brenthis amathusia*, *Pieris brassicae*, *Aporia crataegi*, *Polyommatus icarus*, *Lycaena arion*, *Pararge maera*, *Augiades sylvanus* and a *Hesperia* which I failed to catch, and therefore am unable (in such a difficult group) to identify. I also caught a magnificent specimen of *Plusia chryson*, which unluckily (for me) escaped by an unsuspected hole in the net. One wanted many hours, but I was obliged to return to Goldau, from whence we continued our journey the same afternoon to Weesen, to start about 3 o'clock the next day for Bergün on the Albula Pass.

(ix.) Filzbach and the Thalalp.—According to my original plans we should have gone from Goldau to Bergün in the day, getting three hours or so in the Murgthal between trains; but after sleeping at Weesen I found the most available arrangement was to start in the afternoon from Weesen after walking in the morning across the marsh and up through Filzbach to the Thalalp, though I knew it would be impossible to reach the summit of the Pass in the time at my disposal. I had a special object in this expedition. I had some years ago taken *Araschnia levana* in the Murgthal only a little earlier than this, and Mr. Fison had taken it in the previous year above Filzbach at a considerably higher elevation. As my Samoussy *prorsa* were still coming out I was hoping for the chance of crossing the two broods, which seemed to me likely to prove an interesting, and possibly important, experiment from more than one point of view. Unfortunately I did not see a single specimen of the species, but I still think it might be done in any year when the season was early in northern France and late in the Alps (a not unusual combination of circumstances), either by one person going as I did from one place to the other, or by someone who had been in Aisne sending pupæ to some other person at Weesen or Filzbach.

I saw nothing on this day (July 7th) while crossing the marsh, and the zig-zags up to Filzbach being mercifully in complete shade in the morning, I had no occasion to put up my net until I reached the village. Here I made a mistake and took a cart-track to the right too soon, but quickly discovering my error, I thought to mend it by striking into a foot path bearing to my left. This I followed, sometimes almost losing it, but always getting into it again, until I thought I must be as high as the top of the Pass, but at last, finding some men mowing, I was instructed that a good path, nearly level, would take me in a few hundred yards into the valley I had originally intended to mount, though I should be some twenty minutes or more below the summit. I spoke of this as "a mistake," but it is really far the best way to go, reserving the direct (and very precipitous) cart-track for the descent. In the meadows on the way up I came across several species, mostly at the higher levels. Those lowest down were *Cyaniris semiargus* and *Erebia ligea*, both of which were still to be found, though they were not numerous, almost as high as I went. In

a wood clearing through which the path, such as it was, made its way, were a few specimens of *Argynnis aglaia* and *Brenthis euphrosyne*, and one or two *Melitaea athalia* and *M. dictynna*, and on coming out again into the fields *Erebia melampus*, *E. euryale*, *Aporia crataegi*, *Polyommatus hylas*, ♂ s only, and *Cupido minimus* were not very uncommon. On reaching the steep cart-track that leads directly up to the Thalalp Pass a few other species appeared. *Parnassius mnemosyne* was by no means uncommon, though most of the specimens had seen better days; all those that I took showed indications of a row of white spots in the border, tending towards var. *nubilosa*, but not of the decided form of the Binnenthal. *Dryas paphia* was on the wing as well as *Argynnis aglaia*; *Pararge egeria*, the ♀ s large and fresh, *Euchloë cardamines*, and *Leptosia sinapis* appeared a little lower down, and there were numerous specimens of *Pieris napi*, the ♀ s, even at the highest level, showing no approach towards var. *bryoniae*. On recrossing Weesen marsh I saw a few *A. aglaia*, worn out at this level, and the first few *Agriades coridon* of the season, but there was no sign of *Lycaena euphemus* or *L. arcas*, or of any of the other marsh species which generally abound here.

(To be continued).

Myrmecophilous Notes for 1911.

By H. St. J. K. DONISTHORPE, F.Z.S., F.E.S.

Formicidæ.—Subfamily Ponerinæ.—*Ponera coarctata*, Latr.—A ☿ was found in the nest of *Lasius fuliginosus* at Darenth Wood on May 26th. A small colony was taken in moss at Box Hill, in May, which contained two ♀ s and a few ☿ s. They were placed in a small observation nest, but unfortunately the glass did not fit very well, and most of them escaped, so the nest was a failure.

Subfamily Myrmicinæ.—*Myrmecina graminicola*, Latr. (*latreillei*, Curtis).—One ☿ was found in a nest of *Lasius flavus* at Box Hill on May 7th, and three were found in a nest of *Formica fusca* in the same locality on April 13th. On April 14th I introduced one of these specimens into an observation nest of *F. fusca* obtained at Hartlepool in October, 1910. Next day I found it had been killed by the *fusca* ☿ s. My nest of this species obtained last year is still in very good condition. I recorded[1] that on December 1st, 1910, a number of fair-sized larvæ were present. These larvæ passed the winter well, and on May 16th a number of pupæ were observed. On May 24th a new bunch of eggs had been laid. Some of the pupæ hatched in June and July, and proved to be ☿ s, but on July 5th a ♂ was present. I find the ♂ feigns death when alarmed, in the same way as the ♀ s and ☿ s, by rolling up in a ball. On July 23rd a further batch of eggs had been laid, the previous ones being now small larvæ. By July 27th all the pupæ had hatched, the rest being ☿ s. One of the ☿ s has the antennæ deformed, being bent round and hooked. It is a pugnacious little ant, and attacks a brush if presented to it. It is generally to be found wandering about the nest away from the other ants, which all sit together in one corner. On September 10th larvæ of all sizes were present, and some pupæ. On November 20th the pupæ had hatched, and over 50 larvæ were observed, while the ♀ and all the ☿ s were well, and no dead ants present.

[1] *Ent. Rec.*, 1911, p. 13.

Myrmica sulcinodis, Nyl.—A nest under a stone on the mountain above Loch Rannoch Hotel on June 14th was found to contain ♂, ♀, and ☿ pupæ, as did also another nest under a stone on the sandy bank of the Nethy, at Nethy Bridge, on June 21st. I took both nests home and reared the winged sexes in them. As I hope shortly to publish the distribution of our British ants as far as it is known I mention any localities where I may have found species which, as far as I know, have not been recorded before. Arnold, Ham, and I have all found this species in the New Forest. Besides nests under stones, I have several times taken deälated ♀ s in sand-pits there.

Myrmica laevinodis, Nyl.—Colonies were found under stones on a small Island in Tobermorey Bay, off Mull, and on the Isle of Eigg in September. In two nests under stones at Rannoch, on the mountains, several nearly black ☿ s were taken. On September 28th, at Flaxmere, Delamere, a few ☿ s and a ♂ were found in sphagnum.

Myrmica scabrinodis, Nyl., was found on Mull in September.

Myrmica lobicornis, Nyl.—A ☿ was found in sphagnum on Mull. Two nests were dug up at Weybridge in July, both being beneath nests of *Formica sanguinea*: no ♀ s could be found. I have taken this ant at Whitstable and on Wimbledon Common.

Leptothorax acervorum, F.—A ☿ was taken in a nest of *Formica exsecta*, and a deälated ♀ with *F. pratensis* at Rannoch on June 12th. This species is very common at Rannoch under bark. In one nest under the bark of a log, lying in the saw-pit, all the ants were observed to be covered with a fungus, but were quite active. I secured a number, but most unfortunately lost the tube. Wheeler[2] records the known cases of ants infested with *Laboulbeniaceae*, and he has himself found such ants. He says there are two known species, *Rickia wasmanni*, Cavora, and *Laboulbenia formicorum*, Thaxter, which occur on ants. It is impossible to say now if my ants presented a case in point. *L. acervorum* also occurs under stones on the mountains. I found two colonies under the same stone as *Myrmica laevinodis*. Both species had larvæ and pupæ, and appeared to be quite friendly. They did not attack each other when disturbed, and if they picked up each other's larvæ, or pupæ, when taking them into safety, they put them down again. The *acervorum* ☿ s were very dark in colour, and Forel[3] writes, "The alpine variety of this race is sometimes nearly entirely of a brown-black, and lives under stones." Cameron[4] records an almost black variety of the ☿ at Kintail. I have found *L. acervorum* on the sandhills at Camber.

Leptothorax unifasciata Latr.—Crawley and I found a small colony in the cliff at St. Margaret's Bay on August 20th, we were unable to find ♂ s, or ♀ s. In 1907[5] I found a larger colony there and secured a ♂ and deälated ♀.

Tetramorium caespitum, L.—In April Crawley and I visited St. Issey, in Cornwall, and we found many nests of this ant under stones on the cliffs. A number of *Cardamine* seeds were found in some of the nests on April 25th. I have before recorded[6] taking the same seeds, which

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2. *Psyche*, xvii., 1910, pp. 83-86.
3. *Fourmis de la Suisse*, 1873, p. 84.
4. *Proc. Nat. Hist. Soc., Glasgow*, II., 1875, p. 293.
5. *Trans. Leicester, Lit., and Phil., Soc.*, 1908, p. 227.
6. *Ent. Record*, 1910, p. 17.

are probably either *C. flexuosa* or *C. hirsuta*, in many nests of this same ant at Whitsand Bay. They are not true Myrmecocorous seeds, as they do not possess food bodies. White[7] records this ant "at Branscombe, S. Devon, manifesting harvesting instincts"! It would be very interesting if they were also *Cardamine* seeds he observed. *T. cæspitum* is abundant at Whitsand Bay, and I always hope that *Anergates atratulus* and *Strongylognathus testaceus*, two parasitic ants, which live in the nests of *T. caespitum*, will be found there. We went down in July to try and find them and were joined by Keys. The very dry hot weather was unfavourable for us. The ground was baked up, and the stones over the nests were so hot during the heat of the day, that they burned our hands if held on them long. Only a few ants could be seen, and we had to dig up the nests to find anything. A number of ♂ s and winged ♀ s were secured, and a deälated ♀ found in one nest, in which were no winged sexes, was brought home with many of her ☿ s as an observation nest. This ant chiefly occurs on or near the sea-coasts with us, but the following inland localities have been recorded, Hampstead Heath, Shirley, Chobham, Plumstead Wood, and Wellington College. It is not uncommon in the New Forest near Beaulieu Road Station, and I have found it at Tubney near Oxford.

Subfamily Dolichoderinæ.—*Tapinoma erraticum*, Latr.—On May 18th, I took a small colony in the ground at Woking. It consisted of a deälated ♀ and about 25 ☿ s. I fixed them up in a small plaster observation nest. The ♀ laid eggs but they were always eaten by the ☿ s, in spite of their being supplied with plenty of food. In my former[8] experiment with a queenless nest, the pupæ it contained and eggs laid by one of the ☿ s were also devoured.

Subfamily Camponotinæ.—*Lasius fuliginosus*, Ltr.—On July 27th ♂ s and winged ♀ s were found swarming on the shoots and branches growing out of a tree stump, which contained a large nest of this ant. Copulation took place on the branches and no marriage flight was observed. Crawley and I have recently[9] shown that ♀ s of this species must have been fertilized by their brothers in the nest at Darenth Wood. It occurs in Harewood Forest, the only record I know for N. Hants. Morice has taken it at Hillmorton, in Northamptonshire. This is absolutely the only record I know for any ants from that county.

Lasius niger, L.—On August 9th I made the following notes on a marriage flight of this species, which took place on that day at Folkestone. A large colony occurred in one of the pillars of a gateway to a house in a street in the town. The ants entered the masonry by a hole in the mortar at the base of the pillar. At 5 o'clock in the afternoon the ☿ s were much excited running all over the pavement, and up and down the pillar. A few winged ants were out, and going in and out of the entrance to the nest. At 6 o'clock thousands of ♂ s and winged ♀ s appeared. They emerged from the hole, swarming all over the pillar, and climbing to the top, and on the railings and shrubs in the garden. A very few couples were observed in copula; these flew away together. Most of the winged ants flew off separately; they rose

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[7]. *Ants and Their Ways*, 1895, p. 242.
[8] *Ent. Rec.*, 1909, p. 258.
[9] *Paper read at the Meeting of the Ent. Soc. Lond.*, Nov. 15th, 1911.

straight into the air, going up so high that they were lost to sight. The ☿s helped some of them to start, tapping them with their antennæ, and pushing them to the edge of the top of the pillar. More ♀s than ♂s occurred. By 6.25 nearly every single winged ant had disappeared. Some few ♀s were already on the ground without wings. A marriage flight of this species was observed by two of my friends the same afternoon at Margate, and Seaview, in the Isle of Wight. On August 28th I noticed a marriage flight at Dover, and on my return to Folkestone the same afternoon another was seen there. Hübner writes[10]: "It is requisite that the temperature of the air should be at the 15° or 16° Reaumur (67° F.) to allow of our witnessing the departure of the males and females." It is evident that the ants are affected by some atmospheric influence, and it would be interesting to find out over how large an area they are affected at the same time.

Lasius niger, L., subsp. *alienus*, Först.—A nest was dug up at Weybridge on July 22nd. It contained plenty of ☿s and small cocoons, and some ♂s, but no winged ♀s. The ground was very hard and dry and no deälated ♀ could be found.

L. umbratus ☿s occurred with the *L. alienus*. It is possible that a deälated *L. umbratus* ♀ may have been present, as Crawley[11] has shown that *L. niger* will readily accept *L. umbratus* ♀s.

On August 20th Crawley and I found this subspecies abundant in the cliff at St. Margaret's Bay. In one colony many winged ♀s occurred, but no ♂s; in another very few winged ♀s, but more ♂s.

Lasius flavus, Fab.—On September 15th many nests occurred under stones on the small Island in Tobermorey Bay. Winged ♀s and ♂s were present, larvæ and cocoons. In one nest a deälated ♀ and eggs. Many of the ☿s were large and dark. Similar nests were found on the Isle of Eigg.

Formica fusca, L.—Many nests under stones occurred on the Tobermorey Island, and on Eigg a very small race was found. All the ☿s were exceedingly small, the nest was under a stone, but the ground underneath was too strong to dig it up properly, so no ♀ was found. I sent specimens to Forel, and he writes—" (Isle of Eigg), *Formica fusca*, L. Je possède des exemplaires aussi petits de la *F. fusca*. Ils sont fréquents dans les lieux froids. C'est l'effet de la dénutrition." A nest of *F. fusca* under the bark of a fallen tree at Helensburgh, on September 21st, contained winged ♀s and ♂s.

Formica fusca, L., var. *fusco-rufibarbis*, Forel, was found at Box Hill and Folkestone.

Formica rufa, L.—I have a little more evidence on the founding of colonies in *F. fusca* nests by ♀s of this species. On June 10th at Rannoch, in the Black Wood, I found a dead deälated *F. rufa* ♀ in a *F. fusca* nest under a stone. It had evidently entered the nest and had been killed by the *F. fusca* ☿s. On June 14th, high up on the mountain at Rannoch where no *F. rufa* nests occur, a deälated ♀ *F. rufa* was observed walking round a stone over a *F. fusca* nest. She eventually got under the stone and entered the nest. It was a small colony of *F. fusca*. I am unable to say if she was accepted, as I was unable to stay any longer.

On May 6th I introduced a deälated *F. rufa* ♀ from Wellington

[10] *The Nat. Hist. of Ants*, Eng. trans., 1820, p. 99.
[11] *Ent. Mo. Mag.*, 1909, p. 94.

College into my *F. fusca* observation nest from Porlock. She as usual tried to conciliate the ☿ s when attacked by them. On May 7th she was still somewhat attacked. On May 9th the same, and was held by the legs by some of the ☿ s at times. She was not very aggressive, but killed one of the more persistent ☿ s. By May 13th she was accepted and quite at home. She lived in the nest till July, when, unfortunately, she died. This nest contains two deälated *F. fusca* ♀ s; the *F. rufa* ♀ used to sit with them, and I was anxious to see if she would have eventually killed them. In my mixed [12]nest[13] of *F. fusca* var. *fusco-rufibarbis* ☿ s taken at Whitsand Bay, July 12th, 1909, and a *F. rufa* ♀ taken at Nethy Bridge, May 16th, 1909, the latter has brought up three families with the help of the ☿ s. She laid eggs last on July 27th and September 7th, 1911. On August 16th over twenty cocoons were present, and by September 25th five small *F. rufa* callows had hatched, and over thirty cocoons were present. By November 1st, all the *F. rufa* cocoons had hatched, and they are all perfect, though small, and alive to-day, the *F. fusca-rufibarbis* ☿ s being quite friendly with them. The ♀, unfortunately, died on October 5th, when I had had her for over two years, but this experiment has successfully proved this method of colony founding.

On June 15th I witnessed, at Aviemore, a marriage flight of *Formica rufa* for the first time. A number of ♂ s and ♀ s were seen flying about in a timber yard. They were running about on the large mound of sawdust in the hot sunshine, flying off and settling on it. The ♂ s appeared to rise more easily than the ♀ s, and to be hunting round for the latter. Copulation took place on the ground; I never saw a single pair together in the air. Sometimes a ♀ would rise and fly straight into the air, others ran about on the mound. A ♀ when found would sometimes refuse a ♂. I picked up one pair in copulation when the ♀ turned round and bit the ♂ and they separated. I found this ♀ afterwards refused any other ♂ that approached her.

An interesting observation was made on a branch nest of *F. rufa* in the Black Wood at Rannoch on June 12th. Two nests were found to be in connection 128 yards apart, one a large mound about 72 in. across by 54 in. in height a few yards below the path, and the other a small hillock about the same distance from the path on the other side of it. The ants were going backwards and forwards along the path to the two nests. Food was being carried to the large nest, but the ants were carrying their larvæ from the large nest to the smaller one. A deälated ♀ was trying to get to the smaller nest; though often stopped by the ☿ s she persisted, and gradually won her way to it. Winged ♀ s were upon the larger nest.

At Nethy Bridge nearly all the *rufa* nests examined contained pseudogynes. In one very large nest a number of pseudogyne callows were present, and naked pupæ, of which there were numbers, appeared all to be pseudogynes. There were very few myrmecophiles in the nests and it was evidently too late to find the *Atemeles*,[14] the cause of all these pseudogynes.

Formica rufa, L. var. *alpina*, Santschi *in litt.*—On June 11th I found at Rannoch, on the edge of a moor, a small mound made of

[12] See *Ent. Rec.*, 1910, p. 82.
[13] *Trans. Ent. Soc. Lond.*, 1911, p. 176.
[14] *Ent. Rec.*, 1908, p. 281.

heather, etc. It was superficially very like a nest of *F. exsecta*. The ☿ s running about on the mound, like *F. exsecta* does, were all small in size and very red, and might have easily been taken for *F. exsecta*. There were no tracks to and from the nest like *F. rufa* makes. On examining the ☿ s I at once found that they were not *F. exsecta*. The nest was dug up and four deälated ♀ s were found. I concluded they were a form new to us, and when I had got them home I found the legs were more hairy and the scales had golden hairs, especially in the ♀ s, in which characters they differ from *F. rufa*. I sent specimens to Forel and he says they are the var. *alpina*, Santschi *in litt.* He writes:—Your ants belong to a group of varieties which I once called *truncicolo-pratensis*. They are nearly the colour of the var. *dusmeti*, Emery, from Norway and Spain. Recently Santschi has discovered and distinguished it in our Alps under the name of *F. rufa* var. *alpina in litt.* I myself have received it from Norway and the Black Forest, etc., and have also found it in Switzerland. It is distinguished above all by the more narrow head, as Santschi has shown. It has some exserted hairs on the outer side of the tibiæ (hairs which fail in true *F. rufa*) and some spare hairs on the eyes. This variety is of course an addition to the British List; it is intermediate between the subspecies *pratensis* and *truncicola*. The latter we do not possess as British, but it is possible we may yet find it in the Highlands.

Formica rufa, L., subsp. *pratensis*, De G.—My chief reason for visiting Rannoch was to try and find this subspecies. On June 10th I found a small hillock of pine needles, etc., among the fir trees near the Loch inhabited by it. A number of ☿ s were secured, and the nest was dug up, but no ♀ s were found. On June 12th another nest was found close to the old one. It consisted of a large hillock of pine needles, etc., built over a pine stump. I dug it up, but with the help of a spade and an axe I could not get at the bottom, and no ♀ s were found. Larvæ and cocoons were present. White[15] writes: "This is the common wood ant at Bournemouth," and adds Loch Rannoch, Holnest, Porlock, and Exmouth (Dale). It is certainly not the common wood ant at Bournemouth now, and I am inclined to doubt the last three localities, Saunders[16] says: "The race *pratensis* is rare in this country, but has been recorded from Bournemouth and Rannoch." I find I took a winged ♀ at Corbridge, in Northumberland, on June 3rd, 1906. The abdomen is dull and pubescent, and the scale has hairs, whereas in *F. rufa* the abdomen is smooth and very shining, and there are no hairs on the scale.

Formica sanguinea, Latr.—Dr. Sharp[17] recorded the capture of *Microdon eggeri*, Mik., at Rannoch. Its known host is *F. sanguinea*, and I[18] pointed out that it probably occurred at Rannoch, as I had discovered it at Aviemore and Nethy Bridge. I was consequently on the look-out all the time for nests of *F. sanguinea*, and on June 11th I found a very large colony under stones near a wall on the moor. Many *F. fusca* slaves were present. I took home some *F. sanguinea* ☿ s in laurel to give away. Among them I found large ☿ s of the var. *alpina* of *F. rufa*. As the *F. sanguinea* colony was quite near to where

[15] *Ants and Their Ways*, 1895, p. 232.
[16] *Hym. Acal.*, 1896, p. 2.
[17] *Ent. M. Mag.*, 1910, p. 274.
[18] *Ent. M. Mag.*, 1911, p. 43.

I found the *alpina* nest, it is obvious the former had executed a slave raid on the latter. I did not find any larvæ or pupa-cases of *Microdon* in the nest.

My observation nest of *F. sanguinea*, which I obtained at Woking on April 19th, 1910, is in splendid condition now. Their own ♀ died on May 1st, 1911. On May 5th I introduced a deälated ♀ *F. sanguinea* taken at Woking that day. In digging her up I had unfortunately cut off two of her legs and one antenna. She was at once accepted by my *F. sanguinea* ☿s and their *F. fusca* slaves, and by May 13th had laid several bunches of eggs. In spite of her crippled condition she is alive and well to-day (November 26th). The first callow hatched from her eggs on June 29th. On May 27th I introduced from Woking an *F. sanguinea* ☿, a slave *F. fusca* ☿, and another *F. sanguinea* ♀. The ☿ and slave were killed and the ♀ at first was attacked, but by May 28th she was also accepted, and laid eggs. By September 25th all the cocoons, from eggs laid by the two ♀s, had hatched, and to-day all are alive and well. One ☿ had the antennæ deformed in the same way as the one described above in the *Myrmecina* nest and exhibited similar habits. It died on November 17th.

Formica exsecta, Nyl.—This species was also discovered at Rannoch, a new locality for it. On June 10th a small nest of the usual type was found by the side of a path in the Black Wood; on June 11th a large nest was observed near the Loch, and on June 12th two more large nests were found by another path in the Black Wood.

(*To be continued.*)

A Season's Collecting at Constantinople in 1911.

By P. P. GRAVES, F.E.S.

(*Concluded from vol. xxiii., page 318.*)

Of the Chrysophanids I found *Loweia dorilis* fairly frequent in its later broods. One or two ab. *purpureo-punctata* were taken. Most of my *Rumicia phlaeas* are of this form, and from June to the end of September all are more or less suffused, though I cannot say I came across any true g. a. *eleus*. I found *Chrysophanus thersamon* darker and on the whole larger than my Beirut specimens. The purple gloss on the submarginal area of the hindwings and apical area of the forewings (upperside) of the ♂ is often well marked. I found one or two ♀s with traces of bluish scales as in *R. phlaeas* ab. *purpureo-punctata*, and one ♀ which has the inner edges of 5 of the submarginal black spots on the upperside of the forewings covered with iridescent purplish scales. I have never seen any trace of these scales on the anterior wings of ♀s of *C. thersamon*. *L. alciphron* was uncommon and large, 47mm. to 49mm. Of my 2 ♀ ♀ one seems to be var. *meliboeus*, having the ground colour of the central area of the upperside of the anterior wings dull orange-red with no trace of purple reflections.

I need say nothing of the Theclids save that *Nordmannia ilicis*, and *Bithys quercûs* were very large. Of the Lycænids, *sens. stricto*, *Cyaniris semiargus*, and *Aricia anteros* were the most interesting. The former seemed to belong to the var. *intermedia* (Tutt), being broadly dark margined, though I took no ♀s with more than the very faintest suggestion of blue scaling on the upperside. They varied in size, and I took among them a few large specimens that seemed very near var. *balcanica*, Tutt, save that the ♀s had the faintest trace of orange

lightening at the anal angle of the hindwings. *A. anteros* was wide spread and abundant at Gyök-Su and the Belgrade Forest district, otherwise it occurred in small numbers. The largest specimens and the smallest, the latter 22mm., were taken in spring, the summer and autumn races being of more even dimensions. The number of spots at the bases of the underside of the forewings varied from nil to 8, and I caught one, unluckily imperfect, specimen parallel with the ab. *basijuncta* of *Agriades thetis* (figured in Tutt's *British Butterflies*, vol. iii., plate xlii.). *Polyommatus icarus*, worn specimens of which were still to be seen in sunny places yesterday (November 17th), was common and showed the usual aberrations, *e.g.*, *icarinus*, which seemed almost racial at Kütchük Tchekmedjé on August 12th, *candiope*, *arcuata*, *semi-arcuata*, etc. Scarcely any of my ♀ s have any trace of blue on the upper-side. It will be interesting to see if this will hold good in future years. *Polyommatus amanda* was scarce. *Plebeius argus* (*aegon*) local but abundant in its haunts from May 18th, to the end of August. *Aricia astrarche* was perhaps the commonest of the group. *Glaucopsyche cyllarus* occurred sparingly in May. *Celastrina argiolus* was abundant as a rule in woods and bushy places. I fear I neglected this species, which appeared triple-brooded. I only picked up one decent *Raywardia telicanus* flying over heather at Kiathané on Oct. 7. *Scolitantides baton* was not at all common. A damaged ♀ taken near Kiathané on October 7th was my only observation after mid-May.

Of the Vanessids none were abundant this year. I only saw one *Aglais urticae*, a hibernated specimen, in the whole season, and only one fresh *Euvanessa antiopa*. *Polygonia egea* seemed to be common only in the Constantinople suburbs where one could not pursue it. I missed most of the first brood of *Limenitis camilla*, which seemed larger than the July and August emergencies. The capture of a fresh ♂ on September 8th made me wonder if there is a partial third emergence.

I found *Melitaea trivia* local, *M. phoebe* very rare, and no signs of a second brood of *M. cinxia*. *M. didyma*, of which I have a series of nearly 100 specimens, shows most interesting variations. Some of my second brood specimens are hard to distinguish from Syrian examples. The ♀ s are particularly variable, those from the Belgrade Forest being sometimes much suffused and of a more orange-brown ground colour. The ♂ s of the first brood are unquestionably the largest and most richly coloured. *Brenthis daphne* abounded in the Belgrade Forest in June. It was as large (55-60mm) as many home *Argynnis adippe*. The year or the place was not favourable for *Dryas paphia* and *Issoria lathonia*, of which few were seen. *D. pandora* occurred in most places, though not abundantly. *A. aglaia* was only noted in small numbers. The specimens were large and bright, the ♀ s of the brown form. I got only three *Libythea celtis*, two hibernated but very decent specimens in April and one fresh ♂ June 16th. Of the Satyrids there is little to say. *Satyrus circe* was abundant in the Belgrade Woods and particularly partial to chestnut blossom. I was unlucky with *S. statilinus*, which seemed to wear very quickly. *Pararge roxelana* was wide spread wherever there was shade and cover, but generally occurred singly, and I have only one *P. maera* of three seen. *Coenonympha arcania* showed a tendency towards orange-brown

suffusion on the hindwings of the ♀. *C. pamphilus* was often of the ab. *marginata*.

Finally, of the Papilionids and Pierids *Iphiclides podalirius* was as rare this year as it is usually frequent. The common Pierids were as common and as destructive as elsewhere, but *Pieris napi* was never abundant. The g. a. *napaeae* showed in many cases remarkably little suffusion along the veins of the underside of the posterior wings. The ab. *diniensis* and the vernal ab. *lathyri* of *Leptosia sinapis* were abundant. *Pontia daplidice* was rare in its spring brood g. v. *bellidice*, but very common in late June, July, August, and September. I only took one ♂ *Synchloë chloridice*, a very fresh specimen caught at Gyök-su on September 8th. On the same day I took a chipped ♂ of *Colias erate* and a worn white ♂ of the same on ground where the ab. ♀ *heliee* of *C. edusa* occurred. In July I took another ♂ *C. erate* with a couple of lemon-yellow blotches within the broad marginal band of the fore-wings. I saw others, but they were impossible to reach, flying at a rate that even speedy *C. edusa* could not equal. I did not see *C. hyale*, and wonder if it is not a mountain species in this part of the world. I have one small worn chrome-orange *Colias* that may be *C. chrysotheme*, recorded from here by Staudinger in his brochure on the Lepidoptera of Asia Minor. I think *C. erate* has not been recorded from Constantinople before. It may be an immigrant. South Russia is near us, and north and north-east winds often blow furiously. Its brilliant lemon-yellow colour and tearing flight make it easy to recognise on the wing. *Anthocharis belia* was locally common, but I was not able to search its haunts for g. a. *ausonia*, of which I have but one specimen. I saw a few *Euchloë cardamines*, and have but one, the underside of which seems to me to show less green and more white than British specimens.

The following is my list of species observed and captured for the year. I am rather doubtful about my Urbicolids—my series of *Hesperia alveus* may contain two species, and one of my *Erynnis altheae* is very yellow—but I think it advisable not to hazard uncertain records:—*N. tages*, *E. alceae*, *E. altheae*, *H. sidae*, *H. alveus*, *H. malvae*, *P. orbifer*, *H. morpheus*, *T. actaeon*, *A. flava*, *A. sylvanus*, *G. nostrodamus*, *C. thersamon*, *L. dorilis*, *L. alciphron*, *R. phlaeas*, *C. rubi*, *N. ilicis*, *N. acaciae*, *B. quercûs*, *R. telicanus* (two only), *P. argus* (*aegon*), *C. semiargus* var. *intermedia*, *A. astrarche*, *A. anteros*, *P. icarus*, *P. amanda*, *G. cyllarus*, *S. baton*, *T. balcanicus* (one ♀, July 28th, at Erenkeui), *C. trochilus* (one ♂, August 29th, at Erenkeui, very worn), *C. argiolus*, *P. machaon*, *I. podalirius*, *A. crataegi*, *P. brassicae*, *P. rapae*, *P. napi*, *P. daplidice*, *S. chloridice* (one), *A. belia*, *E. cardamines*, *L. sinapis*, *C. edusa*, *C. erate*, *G. rhamni*, *L. camilla*, *V. io*, *E. antiopa*, *E. polychloros*, *A. urticae* (one), *P. atalanta* (rare this year), *P. cardui*, *P. egea*, *P. c-album*, *M. cinxia*, *M. phoebe*, *M. trivia*, *M. didyma*, *B. dia*, *B. dahpne*, *I. latonia*, *A. aglaia*, *D. paphia*, *D. pandora*, *M. galatea* var. *procida*, *S. circe*, *S. hermione*, *S. statilinus*, *H. semele*, *E. jurtina*, *E. tithonus* (occurs on the Asiatic side of the Bosphorus in July), *P. roxelana*, *P. maera* (one), *P. megaera*, *P. ægeria* and var. *egerides*, *C. arcania*, *C. pamphilus*, and *L. celtis*—a total of 79 species, to which I hope to make some additions next year, when I will give records of the Heterocera which I have observed.

Coleoptera on the Isle of Eigg.

By H. St. J. K. DONISTHORPE, F.Z.S., F.E.S.

The only records of Coleoptera from the Island of Eigg that I am aware of are those contained in a paper on the Aquatic Coleoptera of the North Ebudes by Mr. F. Balfour Browne (*Ann. Scot. Nat. Hist.*, 1911, pp. 149-216), and these, of course, only refer to water-beetles. Having spent a day or two on Eigg in September last, I thought it might be useful to publish a list of all the beetles I observed on the island during that time. Mr. Bishop having very kindly asked Mr. Browne and me to go with him in his son-in-law's yacht, "The Iris," to Mull, to look for *Dytiscus lapponicus*, we joined the yacht at Oban on September 12th, and sailed for Mull. As we did not find any of the *Dytiscus* on Mull, I decided to go on to Eigg. The weather being too rough for the ladies on board for the yacht to go there, I took the steamer to Eigg on September 15th, and left again on the 19th.

Eigg is a small Island near Mull in the Inner Hebrides. The landing stage is on the south-east of the island, and a ferry boat for the mails takes passengers to and from the steamer, as there is no harbour. In Laig Bay, on the west of the island, is a farm-house which serves as a hotel, and where one is very comfortable. I landed on the evening of the 15th, and it was quite dark before the trap, which I had wired for, got me to Laig House, the road being very rough and roundabout, and in parts precipitous. On the 16th I set out for the Loch in the N.E. of the Island to hunt for *Dytiscus lapponicus*. The beetle occurred in great profusion, and as noticed by Mr. Balfour Browne last year, the females were more numerous than the males, 50 ♀s to 30 ♂s being about the proportion. A certain number of both were immature. I did not notice any larvæ. It rained nearly the whole time I was on the Island, and a thick white mist, in which I got lost on the 17th, covered all the high ground, the afternoon of the 16th being the only time when it was clear and fine enough for me to see the other islands round. In fine weather I should say Eigg would well repay the coleopterist. There is a small stretch of sand hills in Laig Bay covered with marram grass, and plenty of herbage and vegetation to sweep, along the borders of the stream that runs down into the bay; everywhere, however was too thoroughly soaked with water for me to attempt any sweeping or searching at the roots of herbage. There is plenty of moss and sphagnum, bogs and waterfalls, and stones on the higher ground to work.

The following is a list of all the beetles I captured or observed:—*Carabus granulatus*, L., in the house; *Carabus catenulatus*, Scop., under stones; *Cychrus rostratus*, L., under stones; *Nebria gyllenhali*, Sch., under stones; *Clivina fossor*, L., under stones; *Pterostichus vulgaris*, L., under stones; *P. madidus*, F., under stones; *Trechus obtusus*, Er., under stones; *Hydroporus obscurus*, Stm., in sphagnum pools; *Agabus arcticus*, Pk., in the loch; *A. bipustulatus*, L., in sphagnum pools, etc.; *Dytiscus lapponicus*, Gyll., in the loch, under stones in numbers; *Anacaena globulus*, Pk., in the loch; *Cercyon melanocephalus*, L., in sheep dung; *Homalota oblongiuscula*, Sharp, on the surface of a pool; *H. subaenea*, Sharp, in carrion; *H. circellaris*, Gr., in moss; *H. atramentaria*, Gyll., var.? in carrion (Dr. Sharp remarks that this may be a new

species of which he has seen other specimens); *Tachyporus chrysomelinus*, L., in moss; *Tachinus laticollis*, Gr., in sheep dung; *Ocypus cupreus*, Ross., in moss; *Philonthus proximus*, Kr., in carrion; *Xantholinus linearis*, Ol., in moss; *Stenus similis*, Hbst., in moss; *Lesteva longelytrata*, Goez. var. *maura*, Er., in moss in a waterfall; *L. luctuosa*, Fauv., in moss in a waterfall (new to Britain); *Acidota crenata*, F., in moss at side of Loch; *Silpha rugosa*, L., in carrion; *S. sinuata*, F., in carrion; *Bythinus bulbifer*, Reich., in moss; *Aphodius contaminatus*, Hbst., in sheep dung; and *A. depressus*, Kug., var. *nigripes*, Stephens, in sheep dung. I may mention that as the 16th was calm enough, the yacht came on to Eigg, and Messrs. Bishop and Browne landed for an hour or so in the late afternoon and visited the *Dytiscus* loch. The latter tells me he took *Agabus chalconotus*, Pz., and *Coelambus 9-lineatus*, Steph., both commonly, and new to his previous list.

Lepidopterology.

By Dr. T. A. CHAPMAN, F.Z.S., F.E.S.

M. Oberthür's last volume* is largely occupied by a very interesting biographical sketch of Guenée, in connection with the figuring of many species of Geometers described by Guenée, of which the type specimens, hitherto unfigured, adorn M. Oberthür's collection. Of these there are 120 figures on 11 plates, nor need we praise them beyond saying that they are drawn and engraved by M. Culot.

The notice of Guenée includes various personal reminiscences of him by M. Oberthür, which add to its value. There are also reprinted from what we, in England at least, would regard as obscure "Recueil de la Société libre de l'Eure" (1842) two humorous little papers from Guenée's delicate and amiably ironical pen. They are "Entomologists depicted by themselves" and "Names in Entomology." These were well worth reproducing, as, essentially amusing and humorous, they present also no little good sense.

Then we have some short papers on Ants and Larvæ, life histories and habits of Lycænids, Hesperids, etc., chiefly by Mr. Powell.

There are also three plates of genitalia of *Carcharodus*, (*Erynnis*) establishing the note on these species in Fasc. v., pt. I., p. 194, and pt. II., p. 104, and in previous volumes, from photographs received from M. C. Lacreuze, of Geneva.

A large portion of the volume gives full page photographs of insects and localities, mostly by Mr. Powell 9 of imagines, 22 of larvæ, and 14 of insect localities and hunting grounds at Aflou, others, apparently taken by M. Oberthür himself, in the Pyrenees, 14 on the north side, chiefly near Gavarnie, and 4 on the south. Also four photographs of the habitats of *Syrichthus* (*Hesperia*) *alveus* var. *foulquieri* near St. Zacharie-Var. Some of these photographs are excellent pictures, all are good, and all present material of much interest from one or other point of view. In Fasc. iv. bis., M. Oberthür gave British Entomologists the credit of leading the way in presenting photographs of localities, etc. If so we did a good thing, and M. Oberthür has made great advances on our teaching.

* Etudes de lépidoptérologie comparée, Fasc. V, (2e partie), 1911.

A Summer Trip in France, Switzerland, and Italy.

By E. B. ASHBY, F.E.S.

One feels it incumbent at the outset, for the sake of anyone who may read the following account, in say, ten years' time, to make the observation that the summer of 1911 having been so extraordinarily fine, and the emergence of lepidoptera in general so very early, the dates given for the times of appearances of species would not in many cases be quite reliable in ordinary seasons.

I left Charing Cross at 9 p.m. on July 8th, and after a good crossing and a pleasant drive through Paris in the very early hours, arrived the following morning at Fontainebleau-Avon station at 8.32. The day was perfect, but of the various species captured in the forest all, with the exception of two fine *Polygonia c-album*, two perfect *Araschnia levana*, var. *prorsa*, and two *Nordmannia* (*Thecla*) *ilicis*, could have been captured in our own New Forest. The day's catch numbered 70, in good condition. Arriving the following morning at La Sarraz station beyond Vallorbe at 7.8 a.m., I walked across to Éclepens station and ascended the hill which Apaturids love. Unfortunately, the day was very tempestuous, and I only saw ten Apaturids altogether, some of which I could not approach. I caught four, including a perfect female *Apatura iris*, and one *A. ilia* var. *clytie* in very fair condition. The marsh at Éclepens was devoid of anything worth naming, but under the hills behind Éclepens station were many *Parnassius apollo* in perfect condition, sheltering, and I simply picked off what I wanted, and also one specimen of *Callimorpha dominula*, together with *Coenonympha arcania* in perfect condition. Arriving at Vernayaz station in the early morning of July 11th, I walked along under the cliffs as far as and round the Tour de la Batiaz at Martigny and spent a very successful day, taking 95 specimens, including 27 different species, amongst them being *Hirsutina damon*, *Pontia daplidice*, *Colias edusa* (one of each), and many *Loweia alciphron*, *Satyrus alcyone*, *Satyrus cordula*, *Erynnis lavaterae*, *Heodes virgauraeae*, *Brenthis daphne* (going over), *Dryas paphia*, and also one *Lycaena arion* in very good condition. The next day, Wednesday 12th, the weather was again perfect, and I set out from the Hotel du Mont Blanc at Martigny, which I had made my headquarters for a few days, and walked to Martigny Bourg, a short distance, and crossing the River Drance at Martigny Ville, turned to the right and walked back along the vineyards in the Plan Cerisier, towards the Tour de la Batiaz. Here I took one of the most perfect *Papilio podalirius* I have ever seen on the wing, several *P. daplidice*, and more *S. alcyone* and *S. cordula*. Afterwards I descended from the Tour and walked under the cliffs as far as the Gorge de Trient, and saw several *Limenitis camilla*, and took one *C. hera*, almost fresh, and also two ♂ *Polyommatus meleager* and one ♀ of the ab. *steeveni*. The next day was disappointing. I walked to Branson, searching all along the Rhone banks under the Les Follaterres for *Glaucopsyche iolas*, and *Scolitantides orion*, but, alas, saw nothing of either, or of *Coluthea arborescens*. I made up a day amongst *Melanargia galathea* and *Leptosia sinapis*, and took one ♀ *C. edusa* in the Rhone meadows near Branson, and though I wandered as far as Fully, got nothing different there except one *B. dia*, quite fresh. It came on to thunder and rain about 2 p.m.,

when I returned to the hotel. My next day's work, July 14th, was spent under the cliffs, Vernayaz to Martigny, and in a catch of 99 were three *L. arion*, one *L. camilla*, all fresh, some fair *B. daphne* and *C. hyale*, *C. alciphron* in good condition, thunder threatening again by by 4 p.m. and the day being very hot. The next morning I walked to Martigny Bourg station and sent some luggage on to Orsières. On the walk up to Orsières through Sembrancher, I took several *P. machaon* and *A. adippe*, and one *Issoria lathonia*. After a late lunch at Orsières I plodded on again to Bourg-St.-Pierre on the Grand St. Bernard Road, but met with very little worth taking in this part of the journey. The Hotel de Napoleon here is interesting, as you see the room which the great general occupied when passing through Bourg-St.-Pierre. Starting early next morning I walked thence over the Grand St. Bernard Pass to Aosta. Between Bourg St. Pierre and the St. Bernard Hospice I took several *Pieris callidice* in fine condition, also *Melampias epiphron*, *Erebia tyndarus*, and *Brenthis pales*. At the Hospice one enjoyed some rest and patted the famous dogs, which seem rather spoilt, but are fine animals, being mostly now descendants of the famous dog "Barry." It is interesting to note that the pure breed of these dogs is preserved in far-off Scotland. Below the Hospice is the Italian Custom House, where a gendarme satisfies himself that you have sufficient money on you to be allowed to enter Italy. On the way down to the first Italian village of St. Rhémy I took several male *P. callidice*, one *Parnassius delius*, and one fine specimen of *Anthocharis simplonia*. I confess I limped into Aosta after a long day, but managed to catch the 5 a.m. diligence next morning for Courmayeur, arriving there at the comfortable Hotel de l'Union, at 10 a.m. After breakfast I went down into the river Dora ravine, towards Pré St. Didier; the river Dora is ever a torrent and its cold waters are thickened with debris, etc., from the grand Mont Blanc Range, which towers above everything else at Courmayeur. Here I found *Brenthis daphne* quite fresh, also *L. arion*, *B. ino*, and *P. hylas*, besides *P. apollo* and commoner insects. Next morning, July 18th, I climbed Mont de la Saxe, famed for its flora, which would have turned the head of a botanist, I imagine, and towards the summit I was delighted to find *Melitaea cynthia*, fresh, and in abundance, males and females, also high mountain forms of *B. pales*. On the way up I also took *Plebeius argus*, in abundance, and on the top a few *C. phicomone*, but there was no sign of *C. palaeno*. One enjoyed one's lunch on the top of Mt. de la Saxe, and gazed with glad rapture on the wonderful panorama around. I counted forty-six snow-clad peaks in all directions, whilst the lordly Mt. Blanc towered highest amongst the other peaks of his range, "*Primus inter pares*." Next day I again visited the Dora ravine, where I took a total of one hundred insects, *B. daphne*, *Argynnis aglaia*, *Agriades coridon*, etc. A little rain came on in the afternoon, the first I had experienced since July 13th, but it cleared by the time I reached the Hotel. After dinner a party of French automobilists of the Auto Club du Périgord, à Périgueux, Dordogne, near Bordeaux, who had been "doing" the Exhibition at Turin, and were *en route* for Champéry, most hospitably entertained me at their musical evening. We had most beautiful songs and music, and before separating that evening we toasted "England" and "France," "à l'entente cordiale," most heartily.

Next day, July 20th, was my last day's collecting at Courmayeur. I climbed Mt. Chétif in good time. The view from the summit is not so good as from Mt. de la Saxe, and the climb is not so arduous, but the flies bothered me a great deal, more so than the mosquitoes in the evenings at Martigny. Near the summit, in some damp alpine meadows, I found *Chrysophanus hippothoë* in great abundance and fresh, also *Heodes virgaureae*, and at the summit a few *C. phicomone* and high mountain vars. of *B. pales*. Next morning I set out at 8.0 a.m. to walk from Courmayeur to the Restaurant du Col Ferret. It is a stiff walk, and the hot sun beat down with force. In the Val Ferret I only got two specimens of *H. damon* var. *ferreti*, a purplish tinge taking the place of the ordinary *damon* blue. Just where the road ended and the mountain track commenced, I was fortunate to meet with seven or eight fine *P. delius* and a host of *B. pales* (type). It is a very stiff climb over the Col Ferret, and when one tried to rest a moment, the fierce sun made one's boots begin to scorch and one was forced to stagger on wearily, until one reached some haven of shelter from the fierce heat under the other side of the hill. After reaching the Restaurant du Col Ferret that night, which is eight miles from the nearest post office, I found one or two French and German guests staying at that lonely inn, and I much enjoyed the cleanest and most comfortable bed, I think, I ever slept in. Next day, leaving the Restaurant at 9.0 a.m., by way of Praz de Fort to Orsiéres I took *en route* some nice *E. ligea*, *A. aglaia*, *E. aethiops* (*blandina*), etc., and between Orsiéres and Sembrancher I was pleased to take two fine *A. paphia* var. *valesina*, one *P. machaon*, one *C. hera*, one *L. arion*, etc. Near the large iron drawbridge over the Drance above Bovernier is a nice bed of thyme, beloved of *L. arion*, *H. damon* (males and females), and other species. Next day, Sunday, July 23rd, after attending Martigny Church at 7.30 a.m., I sauntered quietly along under the cliffs towards Vernayaz, not doing any serious collecting, but looking out for anything good that might be about and collecting what I could for an entomological friend in England. *P. podalirius* was more abundant, and also a few female *H. virgaureae*. I left Martigny for Lausanne and Dijon that afternoon and reached Fontainebleau-Avon Station again next morning at 9.30 a.m. It was awfully hot here, and I was told that fires had been raging in the forest the previous day. After wandering about the forest for a few hours, where I took *P. machaon*, *B. selene* (second brood), *C. hyale*, *Loweia dorilis* and two more *A. levana* var. *prorsa*, a heavy storm commenced at 3.30 p.m., and I took the train forthwith to Paris and caught the 9.10 p.m. express to Calais and London on that night from the Gare du Nord. The grand total of my catch during sixteen days' actual collecting was 1,128 specimens, nearly all in good condition, besides a few larvæ of *Pyrameis cardui*, etc., which produced imagines later.

Luperina (?) (Apamea) gueneei, Doubleday, as a species, and as a British species.

By Hy. J. TURNER, F.E.S.

At the conclusion of my previous notes under the above heading in the last volume of the *Entomologist's Record*, I expressed the hope that "during the coming season some of our continental workers will be

on the look out for *L. nickerlii*," and also expressed the desirability of obtaining details as to the earlier stages of this group of incipient species. With this purpose in view, I distributed a number of copies of the reprint of my notes among our leading students on the continent of Europe. In reply I have received a most kind and interesting letter from one, whose delight it is to render his best aid to a fellow entomologist of whatever nationality he may be, M. Chas. Oberthür of Rennes. He writes "Votre *gueneei* est bien conformé à la *graslini*, Obthr, (*Bull. Soc. ent. France*, 1908) et non á *gueneei*, forme blanchâtre sans dessins apparents, dont ma collection contient le "typicum specimen Var. A" du *Species général des Lépidoptères, Noctuélites.*" Of this pale form of *L. testacea* he goes on to say, "C'est cette *testacea* pâle, d'un blanc-jaunâtre, presque dépourvue de dessins, à laquelle nous donnons le nom de *gueneei*. Elle est commune dans le midi de la France et en Algèrie, rare à Rennes où *testacea* est pourtant très-abondante en automne, mais *testacea* à Rennes, est le plus souvent d'un brun foncé aux ailes superieures, avec les dessins bien écrits. Il-y-a d'ailleurs une foule de variations, mais l'espéce est généralement très-reconnaissable."

Reverting to the consideration of *gueneei* (Doubleday) he writes, "Votre *gueneei*, en France and en Algèrie, a les ailes superieures plus allongées and plus étroites que *testacea*. Elle est aussi elle assez variable. C'est l'espèce que de Graslin avait rapportée à *nickerlii*, mais que j'ai distingué sous le nom de *graslini*. Elle parait en Septembre. Elle est abondante dans les Pyrénées Orientales, surtout." "*Graslini* (*gueneei* Doubl.) a le fond des ailes moins brun, moins 'ochraceous' que *testacea*. Les ailes superieures de *graslini* ont le fond plus gris et moins brun-jaunâtre."

In reply to my request for material for examination, M. Oberthür, with his customary generosity, sent me not only specimens of *graslini* from the Pyrénées-Orientales, but the various forms of *testacea* from Rennes, with two of the pale form, named *meridionale*, one from Hyères and the other from Oran, both of which agree with the form A of the *Species général des Lépidoptères*, and which is common in the south and rare in the north, together with a series of the allied species *L. dumerilii*, showing a parallel range of olive, brown, and pale forms as in *L. testacea*.

In these notes I will deal with the material and information so kindly given me by M. Oberthür.

A glance at the four specimens of *L. graslini* was sufficient to recognise them as *L. gueneei*. The shape of forewing is the same; the general coloration of both fore- and hindwings is identical; the variation, *inter se*, is quite similar, except that two of the *L. graslini* have the reniform stigma nearly as distinct as in the typical forms of *L. nickerlii*; and all the markings are identical in position with those given in my previous notes as being characteristic of *L. gueneei*.

These four specimens were then handed to Dr. Chapman, who at once recognised them as *L. gueneei*. However, we were anxious to see whether examination of the genitalia supported our views, and Dr. Chapman subsequently found that these structures were practically indistinguishable from those of *L. gueneei*, and that there was no hesitation or doubt as to the specific identity of *L. gueneei* (Doubl.) and *L. graslini* (Obthr.).

I have compared this fresh material sent me by M. Oberthür, with that in the British Museum. The specimen I have referred to in my previous notes labelled "Central France, Coll. M. Sand" and classified as *baxteri*, is identical with the specimens of *L. testacea* sent me from Rennes (Central France) and is most certainly wrongly placed as *baxteri*. There are no *L. graslini* in the Museum collections.

Now arises a difficulty. M. Guenée, in or before 1864, had the Doubleday specimen called *gueneei* in his hand and, comparing it with the specimen he had called var. A of *L. testacea*, came to the definite conclusion that they were identical. M. Oberthür has, at the present time, this actual specimen var. A of M. Guenee in his collection, and states, as I have mentioned above, that it agrees with the form of *testacea* from Algeria, *i.e.*, *meridionale*, and with the form from S. France, *i.e.*, *gueneei* (of French entomologists), of each of which forms he has sent me a specimen. I have not the slightest hesitation in calling them pale forms of *L. testacea*. They do not agree with the Doubleday specimen of *gueneei* which M. Guenée identified as var. A of *testacea* of his *Species général*. This Doubleday specimen is undoubtedly, as I have shown before, an example of what we now know in Britain as *L. gueneei*. Hence we are compelled to admit that the identification of M. Guenée was erroneous. Thus the *gueneei* of French entomologists is *L. testacea* var. or ab. *gueneei*, while the *gueneei* of Doubleday has been perfectly separated from *L. testacea*.

From an examination of the specimens, we turn to the references connected with *L. graslini*. In an article published in the *Bull. Soc. ent. de France* for 1908, p. 322, M. Oberthür makes a series of historical observations on a new French species which he names *Luperina graslini*. It appears that Mr. Harold Powell, who had been collecting during the summer and autumn of 1908 in the Pyrénées-Orientales, sent to M. Oberthür, more than 50 specimens of a Noctuid species, which were close to *L. testacea*, but absolutely separable from any known forms of that species, and extremely distinct from the form indigenous to the Pyrénées-Orientales. M. Oberthür had in his collection under the name *L. nickerlii* a short series of a species, which had been obtained from Collioure, Pyr.-Or., in 1847 and 1857, one of which M. Guenée had called var. B. of *L. testacea* in his *Species général, Noctuélites*, I., p. 183. This actual specimen with five others were obtained from the collection of M. Graslin and from that of M. Pierret to whom M. Graslin had presented the example subsequently described by M. Guenée. This last referred-to example bears a label in minute characters stating that the specimen was bred on September 5th from a larva taken at Collioure, and in later writing "I believe it to be distinct," with a doubt as to its identification by M. Graslin with the *L. nickerlii* from Prague, being correct. On comparing the 50 odd specimens obtained by M. Powell with those bred long years before from the same district by M. Graslin, M. Oberthür was satisfied that they were one and the same species, and were undoubtedly not *L. testacea*. He also compared the two series with some four insects which he had obtained from Bohemia under the name *L. nickerlii*, and having concluded that his long series were not that species, named them *graslini* after M. Graslin their original discoverer.

In the *Ann. Soc. ent. de France*, p. 309, 1863, M. Graslin gives a full account of the specimens obtained by him at Collioure in 1847 and

again in 1857, under the name of *Luperina nickerlii*, a perfectly correct determination as we now know. But not satisfied with his own judgment, he sent his specimens to Dr. Nickerl for his opinion, and in reply M. Graslin was informed that he (Dr. Nickerl) "*etait sûr que c'était la même espèce.*" In 1847, when first obtained, M. Graslin took these specimens for southern forms of *L. testacea*, but on obtaining the larvæ in 1857, he compared them with those of *L. testacea*, and found that they were abundantly distinct. Subsequently, a look at Herrich-Schäffer's figure 565 of *L. nickerlii* gave him a clue, and when he considered the material obtained by him in the Pyrenees he included *Luperina nickerlii* as a species new to the French fauna.

Graslin's description of the larva is as follows :—

"Elle est assez courte, amincie aux deux extrémités, et offre l'aspect d'une larva de Coléoptère. Lorsqu'elle est parvenue à la dernière mue, elle est d'une couleur de chair sale, jaunâtre, ou verdâtre, suivant les individus, un peu plus foncée sur le milieu des anneaux, luisante et sans autre dessin que le vaisseau dorsal, qui parait d'un gris roussâtre ou noirâtre à travers la peau. Quelques individus ont le dessus du dernier anneau lavé de noirâtre. La tête est petite, de couleur d'écaille blonde tris pâle, ainsi qu'une plaque anale arrondie par derrière et formant, vue de profil, comme deux bourrelets séparés par une dépression circulaire; cette conformation n'est guère visible qu'au moyen de la loupe. Les stigmates très peu visibles ; même vus à la loupe, ils sont ovales, d'une couleur de chair rosée et finement cerclés de noir. Toutes les pattes sont de la couleur du ventre, avec la pointe des écailleuses et les crochets des membraneuses d'un brun noir."

He goes on to say that the larvæ feed on grasses which grow in sandy places, hiding themselves about their roots. They surround themselves as a rule, with their excrement, which forms a kind of chamber for them. They attain their full size in the month of June, and they fasten together with silk grains of sand, fibres of the roots of grasses and their excrement to form, what can scarcely be called a cocoon, so frail is it.

The chrysalis is indistinguishable from that of *L. testacea*.

The imago emerges at the end of August and in the first fortnight of September.

Coleoptera taken at Ditchling, Sussex, during 1911.

By HEREWARD C. DOLLMAN, F.E.S.

April, the first ten days of May, August and September found me at Ditchling. I was able, at various times, to do a considerable amount of collecting, and now record those captures which seem of interest. *Bembidium quadripustulatum*, Dj. One specimen of this rare "Bem." was taken from thick pond moss on August 17th. The pond at that date was almost dry, and within a few days was baked up entirely. *Hydroporus discretus*, Fair. A short series was taken by shaking out reeds from ditches and ponds, in April and August. *Helophorus dorsalis*, Marsh. A few of this species were taken from a running-ditch at Ditchling on May 7th. *Hydraecia nigrita*, Germ., was very common in this water. Both these species were found again in great profusion at Holm Bush on August 10th. I owe my grateful thanks to Dr. Longstaff for motoring me over to this one-time famous

locality. Here it was that Dr. Power found *Lebia crux-minor* not uncommonly, *Oxylaemus variolosus*, and other most choice species. *Ochthebius exaratus*, Muls. One example from off *Sparganium* on September 12th. *Phloeopora corticalis*, Gr. Occasional specimens from out of oak boughs, and under oak-bark in April and September. **Calodera riparia*, Er., by shaking thick moss in a small wood in May; very rare. **Calodera umbrosa*, Er. One from a sand-pit on May 12th. *Thamiaraea cinnamomea*, Gr., and **T. hospita*, Märk, from *Cossus*-infected oaks in August. **Alianta incana*, Er., was very common in leaf-axils of *Typha latifolia* throughout the late summer. **Homalota oblongiuscula*, Shp., was not uncommon in dead leaves and thick moss in the spring. **H. pagana*, Er., several in "water-traps" on the Downs in September. *H. nigella*, Er., was found in reeds; not uncommonly. *H. aequata*, Er., and **linearis*, Gr., were both common in fallen oak boughs in April and May. **H. immersa*, Er., was also found in these rotten oak boughs, though not commonly. **H. cuspidata*, Er., rarely under bark of oaks. **H. intermedia*, Th., and **H. testudinea*, Er., were both found somewhat freely in thick moss in a field adjoining the house. **Tachyusa atra*, Gr., rare, in pond debris. **Myrmecopora urida*, Er. I found this species in great profusion among sea-weed at Shoreham on April 24th. *Encephalus complicans*, West. Some twenty specimens were shaken from moss and out of grass roots in April and May; one example was found also in late September. **Gyrophaena strictula*, Er., was obtained in the greatest profusion from *Daedalea quercina* on an old stump on May 5th. **Silusa rubiginosa*, Er., somewhat rarely, in oaks attacked by larvæ of *Cossus* on September 10th. *Deinopsis erosa*, Steph., was first taken in the Ditchling district on April 18th. Only odd individuals have been noticed since, and always on the margins of small ponds or ditches. **Tachyporus formosus*, Mat., and *T. solutus*, Er. These two species, although very local, both occurred in moderate numbers in one or two chosen haunts. I obtained both by shaking out large tussocks of coarse grass. **Tachyporus pallidus*, Shp., was very common indeed among reed heaps at the Offham osier beds, near Lewes. *Mycetoporus clavicornis*, Steph., was common in the sand pit during late spring. *M. angularis*, Rey., was taken once only from a hay stack on August 14th. **Heterothops binotata*, Gr., was not uncommon among seaweed at Shoreham on April 24th. **Quedius ventralis*, Ahr. I was very delighted to take this fine insect at Ditchling, it being a very interesting addition to my list of the coleopterous fauna of the district. I discovered it in its usual habitat in a large beech copse near Stanmer Park, some 800 feet above sea level. *Staphylinus pubescens*, De G. The first and only specimen I have taken around Ditchling was captured on April 30th, in a manure heap. **Philonthus corruscus*, Gr. One fine male captured from a dead rabbit on May 5th. In spite of much hard work, I failed to turn up any more of this very scarce and handsome species. **Actobius procerulus*, Gr. Three or four from the sand-pit on May 6th. *Sunius intermedius*, Er. A few from stack refuse in the spring, and commonly therefrom on September 29th. The genus *Stenus* is strongly represented around Ditchling. I have now a record of just 40 species from the neighbourhood. Among these, a few of this year's captures are of the more scarce forms:—*incrassatus*, Er. (not

uncommon on pond mud); *canaliculatus*, Gyll.; *exiguus*, Er.; *fuscicornis*, Er. (from Holm Bush); *pallipes*, Gr. (common at Offham); *pallitarsis*, Steph.; **solutus*, Er., and *fornicatus*, Steph. (a nice series); **Homalium planum*, Pk., was taken under oak bark, and *H. striatum*, Gr., by sweeping and in refuse. *Proteinus macropterus*, Gyll., I found at Ditchling for the first time on April 14th, by shaking thick moss in a small wood. By sifting fallen beech leaves in a small hill-side copse, I came across **Choleva coracina*, Kell., and **C. nigrita*, Er., a short series of each. *Neuraphes elongatulus*, Müll., frequently turned up in moss and dead leaves in the spring, and more rarely *Scydmaenus scutellaris*, Müll. **Euthia scydmaenoides*, Stph., I found in profusion in a manure heap on August 7th. *Bryaxis waterhousei*, Rye., from Shoreham on April 24th; taken rarely from seaweed on the salt marsh. *Trichonyx märkeli*, Aub. This year three specimens were secured, none of them apparently in association with ants. On April 23rd and 25th respectively, I shook one from thick moss in my grounds on the face of the Beacon; on May 8th, a third specimen was sifted out of some rotten oats in a farmyard near by. **Euplectus ambiguus*, Reich., a few specimens from moss. *Gnathoncus punctulatus*, Th., and **G. nidicola*, Joy, in and about starlings' nests in the sand pit, and also crawling on the sand away from the nests. *Cryptarcha strigata*, F., rare, at *Cossus*-infected oak tree near Hassocks Gate Station, September 10th. **Diphyllus lunatus*, F., not uncommon in *Sphoeria concentrica* on ash trees near Lewes. On August 28th, I unearthed, after terrific labour, a large nest of *Bombus hortorum*; this nest was situated quite three feet down in a large complex rabbit burrow. It yielded a nice series of *Cryptophagus distinguendus*, Stm., a species not usually associated with *Bombi*, I believe, a few *C. setulosus*, Stm., one *Antherophagus pallens*, Ol., and a few *Epuraea aestiva*, L. By carefully sifting a hay-stack in April I procured a number of *Ephistemus globosus*, Walt., and from an old ash stump took one *Scaphisoma boleti*, Pz. From the Shoreham salt-marsh, out of a wet clay bank on April 24th, I dug out *Heterocerus britanicus*, Kuw., in some numbers. In early May the Ditchling sand pit yielded *Aphodius inquinatus*, F., and *Plagiogonus arenarius*, Ol. From old "sea-breakers" near Shoreham, whilst digging out *Codiosoma*, I procured a few *Ptinus germanus*, F.

On May 3rd I found some larvæ and pupæ of *Campylus linearis*, L., in an old willow stump. The first imago emerged on May 12th, a ♂. **Xylophilus populneus*, Pz., introduced itself to me from the district for the first time on September 9th, one specimen being taken among some fouled straw in a farm shed.

A day spent on the Newhaven cliffs, in spite of the very burnt-up state of the vegetation, was not unproductive. *Apion laevicolle*, Kirb. (a few at roots of *Lotus corniculatus* and other plants. I could not decide if the species was really attached to the *Lotus* or not); *Sitones waterhousei*, Walt., common under the *Lotus*; *Ceuthorhynchidius dawsoni*, Bris., in abundance on *Plantago coronopus*, and *C. rufulus*, Duf., not uncommonly by shaking out plants of *Armeria vulgaris*, a hitherto unrecorded foodplant for the species.

By sweeping *Genista anglica* on Ditchling Common, *Apion kiesenwetteri*, Desb., and *Apion immune*, Kirb., were found. The latter species is a fresh *Apion* record for Ditchling, and I think *G. anglica*

has not before been brought forward as a pabulum for this broom-frequenting weevil.

Ceuthorhynchus cochleariae, Gyll., was in numbers on *Cardamine pratensis* in the Spring, when also at the Offham osier beds, among cut reeds, I took **Orchestes saliceti*, F.

Those species marked with an asterisk are not recorded from Sussex in Canon Fowler's work, and have not been noted by me before from that county.

The genotype of the Blattid genus Steleopyga.

By A. N. CAUDELL (National Museum, Washington U.S.A.).

Having started the discussion on the above subject, I would like to make a few additional remarks. In the September number of this magazine, Mr. Shelford takes me to task for my "assiduity in raking up names from the decent obscurity of synonymy." I realize clearly that changes of well-established names is deplorable, but, where general usage does not warrant a given treatment, changes due to correction are ultimately inevitable, and the sooner they are made the better. Thus the resurrection of *Steleopyga*. It may have been Fischer von Waldheim's intention to have *Blatta orientalis* typical of his genus *Steleopyga*, but it is facts, not intentions, that prevail in nomenclature. To consider *orientalis* the genotype of *Steleopyga*, and at the same time concede that it was previously the validly designated type of an older valid genus, is a stand not in accord with general usage, and one ultimately destined, I believe, to fall into general disfavour. The International Code allows this treatment, but it is against the good judgment of the able secretary of that Commission, as clearly set forth by his personal rule No. 12d.[1]

I am further charged with skating over the fact that it was not till 1838 that *americana* was made the type of *Periplaneta*. But this fact is not important. I admit that *americana* was eligible for selection as the type of *Steleopyga* from 1833 to 1838, and indeed, so far as I can learn, until 1890, when Kirby designates it as the type of *Periplaneta*. If it was designated as the type of *Periplaneta* before 1890, I have failed to note the reference. Thus, for many years *americana* was available as type of either *Periplaneta* or *Steleopyga*, but was not designated as either. Upon its designation as the type of *Periplaneta*, it ceased to be available as the type of *Steleopyga*, no matter what the date. *Trichoprocta* was all the time available as the type of *Steleopyga*, and, when *americana* was designated as the type of *Periplaneta*, *trichoprocta*, becoming the only available species, became the type of *Steleopyga*. The fact that Brullé established his genus *Polyphaga* on *aegyptiaca* does not alter this fact, as *trichoprocta* was not mentioned in this connection by Brullé, indeed, its synonymy with Brullé's species was not recognised for some years.[2] Holding that the inclusion of a specific name in synonymy under one designated as the type of one genus does not invalidate it as the type of another genus, I believe *trichoprocta* to be the logical type of *Steleopyga*. This appears preferable, as the sinking into synonymy of *Polyphaga* seems less of a calamity than to sink the more generally known genus *Periplaneta*.

[1] *Hygenic Bulletin* No. 24, Treasury Department, U.S.A., p. 27 (1905).

[2] The earliest reference for this synonymy known to me is 1865, Brunner, *Nouv., Syst., Blatt.*, p. 354.

The claim is advanced that, according to reasonings put forth in my former article in *Psyche*, *Steleopyga* would stand in one subfamily while in an emended form it would sink into synonymy in another. This conclusion certainly seems unwarranted as I took especial pains to show that *Stylopyga* was but an emendation of *Steleopyga*, and not a separate genus. Supposing that all students of nomenclature conceded that emendations were unallowable, I did not think it necessary to state that they were to be quoted in synonymy under the name as originally spelled.

In the October number of the journal Mr. Bethune-Baker makes an earnest attempt to solve this problem according to the rules of the International Code. His conclusion is that *americana* is the type of *Steleopyga*, thus giving to each of the three originally included species of this genus its advocate as genotype. Mr. Bethune-Baker has not followed the strict letter of the International Code, as it does not rule that Fisher von Waldheim's inclusion of *orientalis* in his genus *Steleopyga* is *ultra vires*. This is the opinion of the secretary of the International Committee, as stated above, but the Committee itself has never, unfortunately, ruled to this effect.

Mr. Bethune-Baker's treatment of *Stylopyga*, the emended form of *Steleopyga*, as a distinct and separate genus is certainly wrong. Being clearly but an emendation it is to be quoted in synonymy under the genus as originally spelled.

NOTE.—In my original article in *Psyche* an error occurs. The words: "2 Blatt., p. 30 (1907)" in the next to last line in the second paragraph should be referred to foot-note 3, completing the reference given there, and replaced in the text by Mr. Shelford's name and the reference number 3. I indicated this error in galley proof but the printer never made the correction.

NOTE TO THE ABOVE BY R. SHELFORD.

Mr. Caudell gives his case away in the most delightfully ingenuous manner. He states that to regard *orientalis* as the genotype of *Steleopyga* and of *Blatta* is in accordance with the rules of the International Code. I ask no more than that, my position is even stronger than I thought it was for I have the sanction of high authority. Mr. Caudell may believe that this or that rule of the International Code is "ultimately destined to fall into general disfavour," but such an opinion cannot bind those who hold a diametrically opposite one. It would not be very difficult to combat many of the arguments brought forward by Mr. Caudell, but to slaughter the slain has never been a profitable employment.

COLEOPTERA.

HYPOPHLŒUS LINEARIS, F., AT OXSHOTT, AND OTHER SPECIES OF INTEREST THEREFROM DURING 1911.—On July 4th I discovered a few felled pine trunks which seemed in admirable condition, and which, moreover, were riddled throughout by *Scolytidae*. The latter, on examination, proved to be *Myelophilus piniperda*, L., *Hylastes palliatus*, Gyll., *Tomicus laricis*, F., and *Pityogenes bidentatus*, Hbst., the former three in profusion, and the *Pityogenes* very sparingly. Almost immediately I found a specimen of *Hypophloeus linearis*, the beetle I was in search of, and settled down to make the very most of the waning light. *Ocyusa incrassata*, Muls., sparingly; *Epipeda plana*,

Gyll., and a few *Epuraea thoracica*, Tourn., were taken before darkness made further work impossible. In company with my friend, Mr. Donisthorpe, another venture was made on July 4th, the whole of the workable material of the logs, our patience and our combined invective exhausted, but no *Hypophloeus*; our only capture of interest being a few more *Epuraea thoracica* by Mr. Donisthorpe. On October 17th, from thick wet moss by the Black Pond, I shook out a nice series of *Ocyusa picina*, Aub., and one *Stilicus similis*, Er.; from the sphagnum in the pond, in addition to the customary species, such as the *Gymnusa* and *Stenus*, I secured a short series of *Bryaxis impressa*, Pz.—HEREWARD C. DOLLMAN, F.E.S., Hove House, Newton Grove, Bedford Park, W.

MYCETOPORUS FORTICORNIS, FAUV., AND OTHER COLEOPTERA IN THE NEW FOREST.—A few days at the end of July working in the Forest resulted in the capture of some interesting forms. Most of these were typical New Forest species, and though none the less welcome, do not call to be recorded. *Mycetoporus forticornis* was my most interesting capture. I shook one specimen from thick moss at the roots of ling. The larger size, much more transverse and clavate antennæ, the different coloration (especially of the head) and the punctuation, readily differentiate the species from its ally *M. clavicornis*, of Stephens. *Megacronus cingulatus*, Man., and *Caenopsis fissirostris*, Walt., were also shaken from the same moss. Sweeping in Ramnor enclosures on the 26th added a new species to my collection in *Phytobius quadrinodosus*, Gyll. (*denticollis*, Gyll.), and a nice series of *Longitarsus holsaticus*, L. Sweeping *Inula dysenterica* outside Stubby copse produced *Cassida fastuosa*, Schal., one imago and one larva; the latter I reared without difficulty. This beautiful species has not, I think, been taken in the Forest since its capture there by Stephens. From a partly decayed beech tree many interesting beetles were taken, the best of these being *Euplectus bescidicus*, Reitt. (a long series), *Batrisus venustus*, Reich. (several), and *Plegaderus*.—HEREWARD C. DOLLMAN, F.E.S., 14, Newton Grove, Bedford Park, W.

NOTES ON COLLECTING, Etc.

EARLY APPEARANCES.—I took a *Phigalia pedaria* (*pilosaria*) on a gas lamp here on December 29th, a capture which I should say is somewhat near a record for early emergence, and to-day near Eastbourne I set up another record by taking a freshly emerged, *Xylocampa areola* (*lithoriza*) on a telegraph-pole. What is the coming season going to show us?—A. E. TONGE, F.E.S., Aincroft, Reigate. *January 5th*, 1912.

ZONOSOMA ORBICULARIA AB. IANTHINARIUM IN BRITAIN.—Mr. W. H. Harwood has had the good fortune to breed, from larvæ, beautiful extreme examples of *Z. orbicularia* ab. *ianthinarium* [*sic!*], Stichel, which has not hitherto been recorded as British. The form was described and named by Stichel in 1901 (*Berl. Ent. Zeit.*, xlvi., S.B. p. 20) and previously figured without a name by Snellen (*Tijd. Ent.*, xxxviii., p. 58. tab. iv., fig. 4, 1895), and is parallel to *Z. pendularia* ab. *subroseata*. The ground colour is of the same blackish grey, tinged with red in the middle, as in the extreme forms of that species, typically the transverse pale lines and the discal spot of both wings remain conspicuous, but Mr. Harwood has shown me an example so extreme as to have even

these (with the sole exception of the discal spot of the hindwing) almost absorbed in the general darkening. The distal half of the fringes remains white.—Louis B. Prout, F.E.S., 62 Graham Road, N.E. *December 8th*, 1911.

Vanessa antiopa in Hampshire.—I have to record the capture of a specimen of *Vanessa antiopa* in August by a boy at Curdridge, a village in South Hants. The specimen was taken to Lady Jenkyns, who presented it to the Rev. G. E. C. Osborne, Rector of Botley, in whose collection it now is.—Rev. J. E. Tarbat, Fareham, Hants.

CURRENT NOTES AND SHORT NOTICES.

The Life and Love of the Insect, by J. Henri Fabre, translated by Alexander de Mattos (Adam and Chas., Black). In reading this well got up book of essays we are again and again reminded of the contents of six portly volumes on our book-shelves, on the covers of which is impressed the revered name of that prince of the observers of nature, Reaumur. Fabre is the modern Reaumur. But there is a circumstantial difference in the two men. The latter groped as it were in the dark, he had no predecessors whose example he could follow, he dealt only with facts as he actually saw them, he was influenced by no more or less nebulous theories, and he made few deductions of a philosophical nature, nor did he ascribe motives for the actions and habits he depicted so well. Fabre, while equally assiduous, equally accurate and exhaustive in the detail of his observations, ascribes motives for the varying habits, and makes inferences influenced more or less by the generally received conceptions of the theories proposed by many a previous naturalist. While it is with some amount of reserve that we read his deductions, we cannot fail to admire the skill and ingenuity with which our present author has compelled the various living objects of his study to give up the marvellous secrets of their life and love. With some of the creatures, whose ways of life are so faithfully described, we have been familiar from our childhood. The *Typhaeus* buried the sheep manure which laid scattered on the hill above our school. We were always meeting the scavenger *Geotrupes* with its burden of parasites, as it slaved away on its self-imposed task of burying excrementitious matter. We have still the Scorpion which we watched in life, obtained from a box of imported eggs. The charming essays given us in this volume we can read again and again. They are like fairy tales, only that the little fairies are real living identities, and the happenings will be re-enacted for all those patient observers who wish it. We would that all Fabre's essays could be published in this country, and the publishers are to be congratulated on this, may we say, instalment, both for the get up and illustration, and for the moderate price.

A most enjoyable evening was spent with the Entomological Club on Thursday, November 16th, at the Savage Club, when Mr. H. Rowland-Brown was the host. The members and guests present included Prof. Selwyn Image, Drs. T. A. Chapman and F. A. Dixey, Revs. F. D. Morice and G. Wheeler, Messrs. R. Adkin, J. E. Collin, H. Donisthorpe, A. H. Jones, G. A. K. Marshall, R. M. Prideaux, A. Sich and R. South. Sympathetic reference was made to the death of Mr. Verrall by all the members of the club present, its late prosperity,

if not its survival, having been in great measure due to him; the outline of a scheme was also propounded for an annual gathering on the day before the Annual Meeting of the Entomological Society to replace as far as possible the very enjoyable meetings at which for many years Mr. Verrall was so generous and genial a host.—G.W.

In the November number of the *Ent. Mo. Mag.* Mr. J. Hartley Durrant describes two species of *Rhyacionia* = *Retina* = *Evetria*, new to the British fauna. They are *R. logaea*, which species will probably be found in collections under the name of *R. duplana*, which latter, however, is shown to be not a British species, and *R. purdeyi*, an insect taken sparingly at Folkestone during the past year by Mr. W. Purdey.

In the same number, Mr. J. E. Collin concludes his additions to the British List of Diptera with the following species:—*Odinia boletina* from fungi in the New Forest; *Agromyza albitarsis* from Hereford, Kent, Cambs., etc.; *A. posticata* from Herefordshire; *A. abiens* from Orford; *A. carbonaria* from Dartford; *A. laterella*, not uncommon; *A. vittigera* from Newmarket and Bonhill; *A. verbasci* from mined *Verbascum* leaves; *A. aeneiventris*, not uncommon; *A. cunctans*, common; *A. maura*, widely distributed; *A. simplex*, sweeping asparagus beds in Suffolk; *Cerodonta spinicornis* from Cambs., Norfolk and Suffolk; *C. lateralis* in the Oxford Collection (Dale's); *Napomyza nigriceps* from Cambs. and Suffolk; *Phytomyza nigritella* from Chippenham and Bonhill; *P. morio* from Suffolk; *P. fuscula* from Newmarket; *P. veronicae* bred from leaves of *Veronica*; *P. crassiseta* from Chippenham and Bonhill; *P. angelicae* from mined leaves of *Angelica*, Cambs; *P. ruficornis* from Kent, Sussex, Surrey, etc.: *P. pullula* from Newmarket, and *P. tridentata*, one from Suffolk.

In the December number of the same magazine Mr. Norman H. Joy describes two species of British Coleoptera as new to science. *Bledius secerdendus* is closely allied to *B. grenarius*, with which it has hitherto been mixed. It occurs at Dovercourt, Dawlish, Tresco, and Co. Kerry. *Rhynchites harwoodi* has hitherto been mixed with *R. nanae* and *R. uncinatus*, from which Mr. Joy now separates it. It has occurred in both Berks and Hants.

In the August number of the *Zeit. für wiss. Insektenbiologie*, Count Turati gives a short account of Sardinia and its lepidopterous fauna, with several figures of peculiar forms.

SOCIETIES.

Entomological Society of London.—*November 1st*, 1911.—The President announced that the Council proposed Fr. Eric Wasmann, of Valkenburg, Holland, as Honorary Fellow in the place of the late Herr P. C. T. Snellen, of Rotterdam, and Prof. J. H. Comstock, of Cornell University, U.S.A., for the vacancy caused by the death of Dr. S. H. Scudder, of Cambridge, Massachusetts, both of whom were then elected. The following gentlemen were elected Fellows of the Society —Messrs. T. J. Anderson, Teaninich, Craig Millar, Midlothian; Edward Bernard Ashby, 33, Park Road, Whitton, Middlesex; W. A. Lambourn, M.R.C.S., L.R.C.P., Omi Camp, Lagos, W. Africa; J. Jackson Mounsey, 24, Glencairn Crescent, Edinburgh. A Scarce Coleopteron.—Dr. Nicholson showed a specimen of *Aleochara*

discipennis, Muls. and Rey, taken in the early part of this year from moss in a small wood at Alphington, Devon. TERATOLOGICAL SPECIMENS. —Mr. J. R. le B. Tomlin exhibited a teratological specimen of the rare beetle *Triarthron maerkeli*, swept in the Wellington College district this summer. It has the last two joints of the left antenna completely soldered together, making a two-jointed instead of a three-jointed club. Also a specimen of *Longitarsus melanocephalus* (*?*) taken by Mr. J. Collins at Oxford, with legs and tarsi remarkably thickened. NORTHERN NEUROPTERA.—Mr. W. J. Lucas exhibited five specimens, three ♂s and two ♀s of *Panorpa germanica*, taken by Col. Yerbury, four at Dingwall in May, and one at Lockinver in July. One ♂ is practically immaculate, and the other two nearly so; the ♀ from Dingwall is sparsely spotted, while the one from Lockinver is more nearly normal. A TRAVELLED INSECT.—Mr. C. J. Gahan exhibited a living specimen of *Aspidomorpha silacea*, Boh., an African species of *Cassididae*, which had been sent by Mr. G. St. John Mildmay from Nyali in British East Africa on October 7th, reaching London on October 28th. POLYCTENIDAE VIVIPAROUS.—Dr. K. Jordan announced that the *Polyctenidæ* which are parasitic on bats in the tropics, are viviparous like the parasitic Orthopteron *Hemimerus*. The young are born at a very advanced stage, but yet differ considerably from the adult. Two of the forms (*spasmae* and *talpa*) described as distinct species, and lately placed in two different genera, are immature and adult examples of the same species. RARE BRITISH AND IMPORTED COLEOPTERA.—Mr. Harwood exhibited two specimens of *Micrurula melanocephala* taken near Bishop's Stortford by sweeping in the evening, which he believed to be var. *brunnea*, Heer. Also two specimens of *Ocypus cyaneus* taken by Mr. W. H. Harwood at Colchester, one in May and the other in June of this year, the first specimens taken in the district for nineteen years. Also a species of *Coccinella* taken in a case of Tasmanian apples at Colchester. AFRICAN SPECIES OF ACRÆA.—Mr. H. Eltringham exhibited specimens of African Acræas, to show that wide differences of colour of pattern may occur in a single species, and conversely that certain species which can scarcely be distinguished by their outward appearance are nevertheless very distinct, as shown by the structure of the male armature. Several new species and forms were also shown. including *A. lofua*, Eltr., ♂ and ♀, *A. grosvenori*, Eltr., ♂, *A. aureola* Eltr., ♂, *A. ella*, Eltr., ♂, *A. cinerea* subsp., *alberta*, Eltr., ♂, *A. periphanes* f. *acritoides*, Eltr., ♂, and *A. astrigera* f. *brunnea*, Eltr., ♂ and ♀. Dr. Jordan remarked on the extreme variability of the genus and its allies, geographically, individually, and even in the characters of the genitalia. Mr. Bethune-Baker remarked on the unreliability of the genitalia in certain *Lycænidæ*. The President stated that the ♂ genitalia were, as a rule, reliable in the Aculeata, but in the *Tenthredinidæ* the ♂ genitalia were quite useless for specific determination, though the ♀'s afford excellent characters. The Hon. Walter Rothschild remarked on the identity of the ♂ genitalia in certain distinct species of *Macroglossinae*. Com. Walker read a paper on "The Effect of Temperature on Animal (especially Insect) Life," by A. G. Butler, Ph.D., F.L.S. The following papers were also communicated—"Parthenogenesis in Worker Ants, with special reference to two colonies of *Lasius niger*, Linn.," by W. C. Crawley, B.A. "A Monograph of the genus *Acraea*," by H. Eltringham, M.A., F.Z.S.

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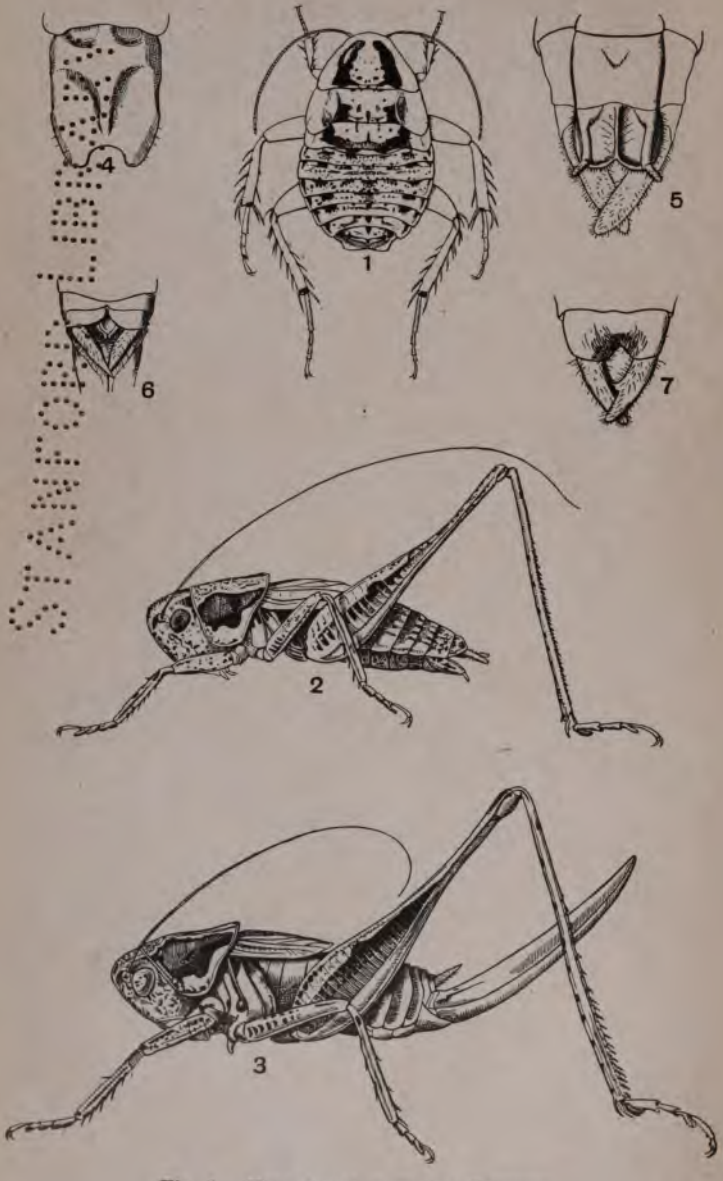


Fig. 1. Hololampra infumata, Brunner.
Figs. 2-7. Platycleis barretii, Burr.

The Orthoptera of Madeira.

By MALCOLM BURR, D.Sc., F.Z.S., F.L.S., F.E.S., F.G.S.

The Natural History of Madeira has been well studied by various competent investigators, but, for some reason, the Orthoptera have been strangely neglected. This is probably due to the fact that this order is rather meagrely represented in the island, so that no specialist has thought it worth while to go there, but all the same, it is by no means lacking in special features, as the following notes will show. These are based on the results of a week's collecting in the island at the end of September last, supplemented by some material in the Museum of the Seminario.

This Museum should be visited by all travellers who are interested in Natural History. Its creation is a monument to the energy and enthusiasm of one man, Padre Ernesto Schmitz, who made Madeira his home for thirty strenuous years, in which he amassed rich and thoroughly representative collections in all branches of Natural History. Unfortunately for Madeira, Padre Schmitz has been translated about two years ago to Jerusalem, but on his departure he bequeathed his task to an ardent disciple, Padre Jayme de Gouvêa Barreto, a Madeiran born and bred, who has thrown himself with enthusiasm into the task of investigating and making thorough collections of the Fauna and Flora of the Archipelago.

Before leaving Madeira, Padre Schmitz had the pleasure of seeing his collections well housed in a large room in the Seminario, an ecclesiastical educational establishment of which he was Prior, where the Museum is well-fitted and housed, at the cost of the institution, supplemented by occasional contributions from visitors.

The insects are not so well represented, for Padre Barreto is single-handed, and in addition to his normal duties in the Seminario, mounts and preserves all specimens himself, including the birds and fish, as well as collecting in every branch of Natural History. His task has been made even harder since the Portugese Revolution, which incidentally I witnessed, calling in Lisbon two days after leaving Madeira, for the Republican authorities, in their anti-ecclesiastical zeal, removed Father Barreto's colleagues from the educational section of the Seminario, leaving him alone to do all the good work, so that he has since had little time or energy for science. Not being a lepidopterist, I am unable to say much of the butterflies, but a case in the Museum contained *Danais archippus*, the beautiful *Diadema inaria*, *Gonepteryx cleopatra*, *Colias edusa*, with the var. *helice*, *Colias hyale*, *Argynnis lathonia* and *Pyrameis atalanta*. The collection of Coleoptera is a good one, as there is an abundance of peculiar local forms, and the order has been well worked.

The spiders too have been well studied, and there is a fairly full collection, all determined and worked out.

The Hemiptera have not yet received attention, nor the Hymenoptera, nor the Myriapods, and Father Barreto is anxious to enter into correspondence with specialists who will work out material in the two latter groups.

Madeira rejoices in three peculiar species of earwigs. These are, *Perirrhytus edentula*, Wollaston, which seems to be rare, as I failed

to find it in spite of careful search; there is the allied *P. madeirensis*, Borelli, discovered by Padre Schmitz, in similar localities with *P. edentula*, under stones, on the lower levels; finally there is *P. schmitzii*, Borelli, discovered by Padre Barreto near Poizo, at a considerable elevation. All these earwigs have been taken by hazard only, and though I spent very many hours industriously turning over stones in various localities, I failed to come across any of them. Indeed, of the two latter species, the three or four original specimens are the only ones known to exist in collections. *Forficula auricularia*, L., is fairly common, but far less abundant than in Europe. I found a single male lying dead on the path near the Grand Corral. There are several specimens including var. *forcipata*, Steph., in the Museum. *Labidura riparia* occurs on the coast, there are a few specimens in the Museum, and I possess some taken at Funchal in 1884. The common earwig of the island is *Anisolabis annulipes*, Luc., which Father Barreto and I found in numbers under stones in a dry river bed just outside Funchal; this was on September 30th, and they generally occurred in pairs, the female, in three instances, sitting in an apparently dug-out depression in the earth, taking care of a pile of about a dozen minute oval cream-coloured eggs, a little less than 1mm. in length.

In the Königsberg Museum there are specimens of *F. auricularia*, *L. riparia* and *Labia minor*; the last species I did not come across. Padre Barreto has found that *Labia curvicauda*, Motsch, occurs in numbers in the Seminario in Funchal. This little species is probably of Oriental origin, but now occurs in all tropical countries.

On one occasion I came across a little procession of *Termes lucifugus*, Rossi, under the same stone.

Various foreign cockroaches find the climate congenial, and *Rhyparobia maderae*, Fabr., is apparently long since established, but it is highly improbable that it is indigenous in spite of its name, for the fauna is essentially palæarctic, and the *Panchloridae* are a neotropical group; *R. maderae* is now cosmopolitan.

There are two indigenous Blattids known: *Loboptera decipiens*, Germar, is common, but I only saw a single adult specimen, though nymphs, larvæ and oothecae were abundant under stones in all localities. The other species is *Hololampra infumata*, Br., which is rarer. Padre Barreto lent me the three or four specimens to submit to Mr. Shelford for determination. He has taken it at Poizo, on the mountain. It remotely resembles *Ectobius panzeri*, and was recorded as that species by Wollaston, under the name of *E. ericetorum* (Woll. *Ann. Mag. N.H.*, 1858, p. 21). He found it in pine woods from 4,500 to 5000 ft. above the sea. It is allied to the South European *A. marginata*, Schreb.

Mantis religiosa, L., occurs; I did not see a living one, but there are two or three in the Museum. Padre Barreto looks upon it as a rarity.

In the *Acridiodea* I found three females of *Chorthippus pulvinatus*, Fisch. de W., on the steep mountain slopes, above the pines, in the Grand Corral; all three specimens had the elytra and wings strongly abbreviated; the length of these organs is extremely unstable in this species, but as a general rule, they are longer in the more southern area of its distribution. *Epacromia strepens*, Fabr., is common in the

same locality. *Epacromia thalassina*, Latr., is the common grasshopper of the island. It swarms everywhere. I found it in all stages of growth in the grass borders in the Botanic Gardens, and every *ribeira*, or dry torrent, swarms with it, for there are no other uncultivated spots in the lower levels, all the hillsides being given over to vineyards, sugar-cane, and banana plantations. *Stauronotus maroccanus*, Thunb., is recorded from the island by Kirby, but I do not know his authority.

The *Oedipodidae* are represented by *Pachytylus danicus*, L., which is common everywhere, by *Oedaleus nigrofasciatus*, De Geer, which occurs sparingly in the lower levels, but in great numbers in the mountains. I did not come across *Sphingonotus caerulans*, L., but there are specimens in the Museum; it is recorded from the island by Brunner. Serville describes a species which evidently resembles *Acrotylus insubricus*, Scop.; he names it *Oedipoda maderae* (*Orth.* p. 730, 1839), which de Saussure sinks as a queried synonym of *Thalpomena algeriana*, and for this reason, Kirby records it under the name of *Thalpomena maderae*. Probably it is *Acrotylus insubricus*, as this is a common South European species, which extends as far as the Canaries, and there is no improbability in its occurring in Madeira, though I failed to find it.

The *Acridiidae* are represented by *Caloptenus italicus*, L., which is common. The Madeiran race differs somewhat from the continental form in the rather deeper crimson wings. Once at least *Schistocerca peregrina*, Oliv., has struggled over from Africa. No other Acridian Orthoptera have been as yet noted.

In the Locustine groups, *Phaneroptera nana*, Charp., is very common in the ornamental shrubs in the hotel gardens; it hides during the daytime, but at night-fall, its presence is betrayed by an intangible *tss tss* among the branches, very difficult to locate. *Conocephalus nitidulus*, Scop., is not rare in some *ribeiras*. *Decticus albifrons*, Fabr., is said by Padre Barreto to be common, but I did not chance to come across it. It is also recorded by Kirby. *Platycleis grisea*, Fabr., occurs also, but is not common; I took it sparingly in the higher slopes of the Grand Corral. It is also recorded by Kirby. *Platycleis barretii*, Burr, is a new species, described below, of which I took one pair on the grassy slopes at an elevation of at least 5,000 ft.; it is related to *P. grisea*, but its shortened wings and elytra give it a superficial resemblance to *Olynthoscelis griseoaptera*, De Geer.

In the crickets Bolivar records *Gryllus hispanicus*, and *Liogryllus bimaculatus* is represented in the collection, and I found several immature specimens, but did not come across an adult. After dusk the chirp of the crickets may be heard, but not so intense as in the Canaries or on the mainland. Perhaps *L. campestris* occurs too, but I saw none of its iridescent larvæ; and I cannot distinguish its stridulation from that of its more southern congener.

PLATYCLEIS BARRETII, sp.n.—Statura modica; griseo-testacea; elytra fortiter abbreviata, grisea, obtusa; pronotum depressum, lobis deflexis, margine postico et infero albo-marginatis; cerci ♂ prope apicem dentati; ovipositor vix incurvus, pronoto duplo longior.

		♂		♀
Long. corporis ...	...	15mm.	...	16mm.
,, pronoti ...	...	5mm.	...	5mm.
,, elytrorum	...	4.5mm.	...	4mm.
,, femor. post.	...	15mm.	...	16mm.
,, ovipositoris	...	—	...	11mm.

Size medium; colour greyish and brown, mottled: Antennæ very long. Frons and occiput heavily marbled with brown and cream; the latter with a median pale line; eyes of the same colour. Pronotum depressed, the disc similarly marbled, with a pale median line; median keel prominent in posterior portion; lateral flaps dark brown, with a broad cream margin posteriorly and anteriorly. Prosternum unarmed. Legs grey-brown, mottled and marbled with darker; posterior femora with longitudinal black band on the outer face. Elytra abbreviated, reaching the sixth abdominal segment in the ♂, the fifth in the female, apically rounded, grey-brown, the veins darker and prominent. Abdomen dull reddish-brown. Anal segment in the ♂ deeply roundly excavate, with short, rounded lobes. Cerci ♂ surpassing subgenital lamina, cylindrical, with a small tooth near the apex; subgenital lamina ♂ tricarinate, with a small round apical emargination, with rounded lobes and short styles. Anal segment ♀ incised; cerci ♀ shorter than in ♂, not toothed; subgenital lamina not keeled nor sulcate, with a rounded emargination and rounded lobes. Ovipositor very gently curved, more than twice as long as the pronotum.

MADEIRA.—Grand Corral, October 2nd, 1910, 1 ♂, 1 ♀, (in c.m.).

This is a very distinct species; its nearest relatives are perhaps *P. modesta*, Fieb. (S. E. Europe), *P. saussureana*, Frey-Gessner (C. Europe), *P. brachyptera*, L. (C. Europe), and *P. fusca*, Br. (Greece). The ovipositor is longer and straighter than in any of these except the last. The cerci of the male are shorter and the tooth much smaller than in *P. saussureana*, *P. brachyptera* and *P. modesta*, and the lobes of the supra-anal plate are short and rounded, not acute.

The subgenital lamina of the female is not sulcate, though the lobes and emargination are rounded. This suggests relationship to the fully winged group of *P. grisea*, Fabr., and its allies. The long ovipositor at once removes it from the group of *P. tessellata*, Charp.

It is probably restricted to the higher parts of the island of Madeira. My attention was attracted by the stridulation, on the steep, grassy and rocky slopes near the Grand Corral, on leaving the tree zone. I only observed it in one restricted locality, and though I saw several specimens I was only able to catch a pair.

It is dedicated, with real pleasure, to Father Jayme de Gouvêa Barreto, the genial Curator of the most interesting Museum, founded by Father Schmitz, in the Seminario in Funchal.

It is the only known saltatorial Orthopteron peculiar to the island.

LIST OF ORTHOPTERA KNOWN FROM MADEIRA.

DERMAPTERA.—*Labidura riparia*, Pall.; *Anisolabis annulipes*, Luc.; *Labia minor*, L.; *L. curvicauda*, Motsch.; *Perirrhytus edentulus*, Woll.; *P. madeirensis*, Bor.; *Pseudochelidura schmitzii*, Bor.; *Forficula auricularia*, L.

BLATTODEA.—*Hololampra infumata*, Br.; *Loboptera decipiens*, Germ.; *Rhyparobia maderae*, Fabr.

MANTODEA.—*Mantis religiosa*, L.

ACRIDIODEA.—*Chorthippus pulvinatus*, F. de W.; *Epacromia strepens*, Fabr.; *E. thalassina*, Latr.; *Stauronotus maroccanus*, Thunb.; *Pachytylus danicus*, L.; *Oedaleus nigrofasiatus*, De Geer.; *Sphingonotus caerulans*, L.; *? Thalpomena maderae*, Serv.; *Caloptenus italicus*, L.; *Schistocerca peregrina*, Oliv.

LOCUSTODEA.—*Phaneroptera nana*, Charp.; *Conocephalus nitidulus*, Scop.; *Platycleis grisea*, Fabr.; *P. barretii*, Burr.; *Decticus albifrons*, Fabr.

GRYLLODEA.—*Gryllus hispanicus*, Bol.; *Liogryllus bimaculatus*, De Geer.

EXPLANATION OF PLATE I.

Fig. 1.—*Hololampra infumata*, Br., ♀.
2.—*Platycleis barretii*, Burr., ♂.
3. id. ♀.
4. id. subgenital lamina, ♀.
5. id. subgenital lamina, ♂.
6. id. supra-anal plate, ♀.
7. id. supra-anal plate and cerci, ♂.

Occasional Notes on the genus Eupithecia in Co. Fermanagh.

By J. E. R. ALLEN, M.A.

I call this paper "Occasional Notes" because, from many causes, my observations have been far from exhaustive. In particular, my absence from this locality every year during August and a great part of September may have caused me to miss some species.

Eupithecia pulchellata.—Occurs sparingly as an imago. I have not worked for the larva.

E. oblongata.—One specimen only, bred in 1911 from a larva on *Senecio jacobaea.*

E. scabiosata.—Both larvæ and imagines, but in small numbers.

E. plumbeolata.—Not common.

E. pygmaeata.—One in 1907 and about half-a-dozen in 1911.

E. satyrata.—Abundant on bogs and mountains.

E. castigata.—Seems to be rather scarce, though I have taken both larva and imago.

E. trisignaria.—About 40 larvæ on *Angelica sylvestris* in September, 1910.

E. virgaureata.—Very abundant. In May the first brood is to be taken at dusk or beaten from hedges. The larvæ are to be beaten from the flowering branches of hawthorn in June and July. The imago occurs again in July and August, and the larva again in the autumn on *Senecio jacobaea, S. palustris, Angelica sylvestris, Solidago virgaurea*, and probably other plants. I have taken it in the garden, once on a rosebud, and once on a cultivated form of daisy. In September, 1910, the larvæ were very abundant. I took hundreds on ragwort, but a very large proportion of these were stung. Golden-rod is not plentiful here, and I only worked it in one locality, the shore of an island in Lower Lough Erne. The larvæ taken there were much less infested than the larvæ from ragwort, and produced much larger moths. Of the larvæ taken in June and July, some come out as a second brood in July and August of the same summer, some appear with the first brood in the following summer, and I bred one on April 24th, 1909, which had lain two winters in the pupa, from June or July, 1907. I am unable to say whether the autumn larvæ ever lie over for more than one winter. The list of food-plants given above is certainly incomplete. For instance, the progeny of the golden-rod feeding larvæ must find some other food than hawthorn, for there is very little of it growing on the island, where they occur. Similarly

the larvæ on hawthorn are often abundant in places where neither ragwort, golden-rod, nor angelica occur in any quantity.

There seems to be scarcely any difference between the two broods, except for the greater size, already mentioned, of the golden-rod feeders. I have one melanic specimen, and two or three of a delicate grey tint, but on the whole there is not much variation.

E. indigata.—One specimen.

E. nanata.—Common on bogs and mountains.

E. vulgata.—Common.

E. absinthiata.—Larvæ common on *Senecio jacobaea* and *Scabiosa succisa*. The moths from these two food-plants seem to belong to the same species, and I can see no reason for separating the scabious feeders as *minutata* or *knautiata*.

E. abbreviata.—Not very common.

E. dodoneata.—Abundant. I beat the larvæ from hawthorn flowers in June and July. The pupæ often lie over two winters.

E. exiguata.—Fairly common.

E. togata.—Two specimens in 1909. I have not worked for the larva.

E. pumilata.—Only one specimen, but probably it only needs searching for.

E. coronata.—Abundant; moths at dusk in May, though not often seen; larvæ are beaten from hawthorn flowers in June, rather earlier than those of *E. virgaureata* and *E. dodoneata*. The moths appear again in June and July, and larvæ on *Angelica sylvestris* (and probably other flowers) in September. The June larvæ emerge as the second brood of the same year or the first of the next year.

E. rectangulata.—A few in gardens, but apparently it is not common.

Myrmecophilous Notes for 1911.

By H. St. J. K. DONISTHORPE, F.Z.S., F.E.S.

(*Concluded from page* 10.)

COLEOPTERA.—*Oxypoda haemorrhoa*, Sahl., was taken in nests of *Formica rufa* at Wellington College 6. v., and Nethy Bridge 17. vi., and with *F. exsecta* at Rannoch 12. vi.

Microglossa pulla, Gyll.—Dr. Joy sent me up specimens from birds' nests at Bradfield. These I introduced into my *Lasius fuliginosus* nest, on May 24th, but the beetles escaped under the glass cover over the plaster nest. They exhibited the usual defence of myrmecophilous Staphs, when attacked by the ants. I must repeat the experiment.

Dinarda dentata, Gr.—Specimens taken at Woking with *F. sanguinea* in May, were introduced into my *F. sanguinea* nest. Copulation took place, and they lived in the nest for months. On July 22nd several *Dinarda* larvæ were observed, but they eventually disappeared.

Atemeles emarginatus, Pk.—This species was very abundant at Porlock in April. On 27th, Crawley and I found six specimens in a nest of *Myrmica laevinodis*, and others in nests of *F. fusca*, *M. ruginodis* and *M. scabrinodis*. On 28th, we found six in one *F. fusca* nest, and numbers with *M. ruginodis*. The beetles were evidently just leaving the *Myrmica* nests. Specimens brought home and introduced into our *F. fusca* nests lived there for some time. Copulation was observed on

May 3rd and 4th, and a larva was subsequently observed by Crawley in one of his nests.

Drusilla canaliculata, F., was found in *F. fusca* nests at Rannoch on June 10th.

Quedius brevis, Er.—Larvæ were found in nests of *L. fuliginosus* at Wellington College on May 6th.

Conosoma immaculatum, Steph.—This species was several times found in nests of *F. fusca* at Boxhill. Last year I took it on several occasions in a nest of *L. fuliginosus* at Darenth Wood. These seem curious localities for a beetle which is often found in fens and damp places, in sedge refuse, etc. On April 14th I introduced a specimen into my *F. fusca* nest from Hartlepool. It protected itself against the ants and lived in the nest till 20th, when it escaped. Another beetle (*Medon brunnea*, Er.), an ant, and a bug introduced from Box Hill on the same day were all killed by the ants in a few hours.

Dendrophilus pygmaeus, L.—The specimen[19] mentioned in my "Notes for 1910," which bred out of my *F. rufa* nest on September 8th, 1910, died on August 7th this year. On May 7th I put it into my *F. rufa* mixed nest from Parkhurst Forest, and on July 11th into my *F. rufa* and *L. fusco-rufibarbis* nest. It lived on quite friendly terms with all those ants.

Cetonia floricola, Hbst.—A number of larvæ were taken in a hillock of *F. rufa* at Nethy Bridge, on June 17th. These I introduced into my *F. rufa* nest on June 25th, when they at once buried themselves in the nest. A perfect insect hatched out on September 24th. The rest no doubt will appear next year. I have several times seen some of the larvæ against the glass sides of the nest.

DIPTERA.—*Microdon mutabilis*, L.—My chief reason for going to Porlock this year, was to try and find more larvæ of this handsome fly in the ants' nests there, and to endeavour once more to find out what the food of the larva really is. On April 27th Crawley and I found three large larvæ, four quite small young ones, and ten pupæ in nests of *F. fusca*, and a very young one in a nest of *Myrmica ruginodis*. This is the first record of a *Microdon* larva in the nest of a *Myrmica*. Wasmann[20] records the larva of this fly with *F. fusca*, *F. rufa*, *L. rufibarbis*, *L. niger*, *L. brunneus*, and *L. flavus*, and subsequently[21] with *F. sanguinea*.—On April 28th we found nineteen large larvæ and one pupa in *F. fusca* nests in the woods further away from Porlock. I took back a nest of *F. fusca* and fixed it up in a Crawley nest, and introduced into it all my share of the larvæ and pupæ on May 3rd. On May 4th two of the larvæ pupated. On May 18th the first fly hatched but its wings never grew. The ants threatened it with their jaws, but did not otherwise attack it. Other specimens hatched on May 22nd, 24th, 25th, 26th, 27th, 28th, and 31st. All were perfect, the wings growing to their full size in a few minutes, excepting two besides the one before mentioned, in which the wings never grew, due I expect to injuries received in bringing them home. When the ants approached a fly it kicked out with its back legs, and the ants appeared to be frightened. In nature the flies would leave the nest at once. Crawley

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[19] *Ent. Rec.*, 1911, p. 60.
[20] *Krit. Ver. d. Myr. u. Ter. Art.*, 1894, p. 173.
[21] *Erst. Nacht z. d. Ameisen gäste v. Holländ Limburg*, 1898, p. 7.

kept the small larva from the *Myrmica* nest, with these ants. It was unfortunately killed by them and eaten when nearly full grown. The smallest larva I had is now full grown and still alive to-day, December 23rd, it having lived in my nest for over seven months. It is always in the chamber occupied by the ants. When they move it very slowly follows them. The ants often sit on it and walk over it, but they never feed it. In my former[22]-[25] experiments I kept the ants and larvæ in a bowl with earth, and as the ants and the *Microdon* larvæ were always beneath the earth, I could never see them without disturbing the nest. Now I have been able constantly to observe them. It is quite clear that the food of the larva consists of the droppings and pellets (Janet's[24] *Boulettes de nettoyage*) of the ants. It has never had any other food in the bare chamber in which it lives, it has never gone to the honey which is in the last (the light) chamber, the ants have never fed it, and it has grown to a full size larva from a very tiny young one. The same thing took place with Crawley's larva which was nearly full grown when killed. The photograph of a live larva, etc., will be found in the *Ent. Rec.* for 1909, plate 2.

Melichia ludens, Wahl.—Specimens were taken with *Lasius fuliginosus* at Darenth Wood, on May 26th, and at Oxshott on June 6th. The latter is the fourth British specimen, and Oxshott is a new locality for it.

Phora formicarum, Verrall.—On July 22nd specimens of this tiny fly were observed and captured, hovering over ants in nests of *Formica sanguinea*, *Lasius umbratus*, and *Myrmica lobicornis*, at Weybridge, a new locality for the Dipteron.

Phora conformis, Wood.—Two specimens and a species of *Oscinis* were found in a nest of *Myrmica laevinodis* under a stone at Rannoch on June 14th.

Phyllomyzia lasiae, Collin.—Some small Dipterous pupæ taken in a nest of *L. fuliginosus* at Wellington College on May 6th, and introduced into my *L. fuliginosus* nest, hatched out on May 16th and 28th and proved to be this species. It will be remembered that I[25] bred *P. formicae* from larvæ taken in a nest of *F. rufa* var. *rufo-pratensis*, at Nethy Bridge. The larvæ of these flies are not true parasites but live at large in the ants' nests.

Scatilla quadrata var. ?—Collin has queried a fly which I had taken several times last year in the *L. fuliginosus* nest at Darenth Wood as above. I must express my thanks to him for naming these small Diptera for me.

HETEROPTERA.—*Piezostethus formicetorum*, Boh.—This little bug occurred in numbers in one nest at Rannoch on June 10th, both nymphs and perfect insects being secured.

BRACONIDÆ.—*Euphorus bistigmaticus*, Morley.—A female bred out of my *F. rufa* nest from Weybridge, on July 4th.

Pachylomma buccata, Breb.—This species was found in numbers near Rame Head, Cornwall, on July 9th. A large nest of *Lasius niger* occurred under a very big heavy stone, and the Bracons were hovering over the ants around the edges of the stone where the latter entered the

[22] *Ent. Rec.*, 1907, p. 255.
[23] *Ent. Rec.*, 1909, pp. 18 and 19.
[24] *Études sur les Fourmis, etc.*, No. 13, 1897, p.16.
[25] *Ent. Rec.*, 1909, p. 288.

nest. Crawley and Taylor subsequently observed it over the same ant at Sandown, I. of W.

PROCTOTRUPIDÆ.—*Plesiobaeus hospes*, Kieffer.—This little insect was taken in nests of *F. fusca* at Box Hill on April 14th and 20th. Dr. Kieffer, who has kindly named it for me, tells me it is a new species and belongs to a new genus.

LEPIDOPTERA.—*Brachmia gerronella*, Z.—This little moth was found, on July 27th, among the ants in the nest of *Lasius fuliginosus* at Wellington College mentioned above. After I had opened the nest it only flew up and settled again with the ants. It did not fly away when the ants, which were very excited, ran against it, and I did not see it attacked. Durrant, who kindly named it for me, tells me that nothing is known of its life history.

Myrmecozela ochraceella, Tgstr., occurred in numbers in nests of *F. rufa*, at Rannoch, on June 10th.

Tineola biselliella, Hml.—I found specimens in my *F. rufa* nest from Weybridge on September 25th, and one flew out of it on October 14th. Their larvæ were probably feeding on the refuse of the nest, and they may have been introduced into the nest from the house.

COCCIDÆ.—*Ripersia tomlini*, Newst.—Occurred in nests of *L. niger* at Box Hill, on April 14th.

Ripersia subterranea, Newst.—Was found with *L. niger* at Box Hill on April 22nd, and in numbers with the same ant, and also with *L. flavus*, at St. Issey, Cornwall, on April 25th.

Newsteadia floccosa, Westw.—Was taken in a nest of *F. fusca* at Porlock, on April 27th. Newstead[26] records—"on one occasion I found it in the crowns of *Helianthemum* and grass, which were growing in a large ant-hill. . . . . Mr. Luff has met a single example in Guernsey, which he found in an ant's nest together with specimens of *Ripersia tomlini*."

Ortheziola vejdovskyi, Sulc.—I took four examples of this rare species in a nest of *Myrmica scabrinodis* at Porlock, on April 28th. Green, who recorded[27] these specimens, with notes on the genus, tells me it has only occurred at Prague, in Bohemia, heretofore. I am much indebted to Mr. Green for kindly naming all my *Coccidae* for me. The specimen of *Orthezia cataphracta* mentioned by him (*loc. cit.*) was taken in a nest of *F. rufa* at Nethy Bridge, on May 14th, 1909.

COLLEMBOLA.—*Cyphoderus* (*Beckia*) *albinos*, Nicol.—This little "spring-tail" was observed with *M. scabrinodis* at Box Hill, April 13th; with *F. rufa* at Weybridge, April 20th and July 22nd, and Porlock, April 28th; with *F. fusca* at Boxhill, April 22nd and May 7th, and Porlock, April 27th; with *L. niger* at St. Issey, April 25th; with *T. caespitum*, at St. Issey, April 25th, and Whitsand Bay, July 8th; with *L. flavus* at Porlock, April 27th; with *F. sanguinea* at Woking, May 5th and 18th, at Rannoch, June 11th, and Weybridge, July 22nd; with *Ponera coarctata* at Box Hill, May 7th; and with *L. alienus* at Weybridge, July 22nd.

A little species, superficially like *Beckia*, occurs at Kew in numbers with *Wasmannia auro-punctata*. I am endeavouring to get it named.

MYRIAPODA.—*Polyxenus lagurus*, L.—Several specimens were found

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[26] *Brit. Coccidae*, 1902, II., p. 245.
[27] *Ent. Mo. Mag.*, 1911, p. 179.

in a nest of *F. fusca* at Box Hill, on April 4th. I have[28] recorded it with ants last year.

ACARI.—*Trachyuropoda laminosa*, C. and B., occurred in nests of *F. fusca* at Porlock, on April 28th.

Trachyuropoda wasmanniana, Berl.—Several specimens (♂ s) were found in a nest of *L. umbratus* at Wellington College, on May 6th. This is its first record for Britain. Berlese[29] records it as taken by Wasmann in Luxemburg in nests of *L. mixtus*, and remarks that he is not acquainted with the male.

Uroplitella minutissima, Berl., occurred in plenty in my *L. umbratus* nest from Weybridge.

Urodiscella philoctena, Janet.—I recorded[30] this new species to Britain as *Uropoda philoctena*, Trouessart (it is only a question of synonym not an error, see Berlese *loc. cit.*, p. 342), in my *L. umbratus* nest from Weybridge. The specimens were fastened to the strigils of the ants as figured by[31] Janet. It also occurred at large in the *L. umbratus* nest at Wellington College and in my Weybridge *L. umbratus* nest.

Uropoda ovalis, Kram.—Specimens were found on ants in the *L. umbratus* nest at Weybridge on April 4th, and on the same ant at Woking on May 10th. These mites are fastened to the femora of the ants, Janet (*loc. cit.*) only records them on the second leg, but I have found them on all three.

Laelaps myrmecophilus, Berl., occurred at St. Issey, in Cornwall, in nests of *F. fusca* var. *fusco-rufibarbis*, and with *M. laevinodis* on the Isle of Eigg, on September 17th.

Laelaps cuneifer, Mich.—In nests of *F. fusca* on April 27th, at Porlock, and with *L. umbratus* and *L. fuliginosus* at Wellington College, on May 6th.

Cilibano comata, Berl., occurred on the small larvæ in a nest of *L. niger* and on the large larvæ in nests of *L. flavus* at Box Hill, on May 7th. I also found specimens on the abdomen of the ants, as figured by[32] Janet, in *L. umbratus* nests at Woking, May 10th, and Weybridge, July 22nd.

Antennophorus uhlmanni, Hal.—I found this species (of which only two specimens had been taken in Britain before by Michael[33] at the Land's End) in numbers, on the ants in nests of *L. umbratus* at Woking, on May 5th, and Weybridge, on July 22nd. In *Antennophorus grandis*, with *L. fuliginosus*, the mites are nearly always only to be found on the chin of the ant, but with this species they are frequently on the abdomen as well as the head, as figured by Janet.[34] In *A. grandis* the mite is fed by scraping the mouth of the ant on which it is with its front legs, when the ant lets out a drop of fluid, which the mite sucks up. In this species the mite is often fed by other ants besides the one on which it may be. On May 11th I introduced ♀ s of *L. umbratus* from Woking, which had specimens of the *Antennophorus* on them, into my *umbratus* nest from Weybridge. I expected that the

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[28] *Ent. Rec.*, 1911, p. 61.
[29] *Redia*, I., 1903, p. 362.
[30] *Ent. Rec.*, 1911, p. 237.
[31] *Études sur les Fourmis*, 13, 1897, p. 46.
[32] *loc. cit.*, p. 12.
[33] *Ent. Rec.*, 1902, p. 69.
[34] *loc. cit.*, p. 27.

strange ☿s would be killed and the mites transfer themselves to my old ☿s in the nest. To my surprise, however, the strange ants were readily accepted by those already in the nest. (I may mention that this also took place with strange ☿s from the *L. umbratus* nest at Wellington College.) One of the mites on a Woking ant solicited one of the Weybridge ants for food, and the latter immediately fed it. I found the *Antennophori* often transferred themselves to the young callows soon after they had been extricated from their cocoons. The callows often tried to get rid of the mites, falling on their backs and rolling on the ground, but eventually got reconciled to their fate. On May 22nd I took some of my workers with *Antennophori* on them to Crawley, and we introduced them into his *L. umbratus* nest, and again his workers fed the mites on my ants. When an ant is feeding at the honey in the nest, and has a mite on its chin, the latter gets to one side of the ant's head to allow it to feed. When two ants feed each other, if one has a mite on it, the mite leans forward and seems to share the meal. I have now found all the four known European species in Britain; Wheeler[35] described two new species, *A. wasmanni* and *A. donisthorpei* on ants in America, and suggests that in this genus the ♀ only lays one egg at a time, which she fixes to the ant infested by her.

APHIDAE.—*Paracletes cimiciformis*, E. Heyd.—Crawley and I found this species in numbers in nests of *Tetramorium caespitum*, at St. Issey, Cornwall, on April 25th. I have previously[36] found it with the same ant at Whitsand Bay. Crawley[37] records a creamy white *Aphis* with long hind legs, which it waves whenever an ant solicits it, in *L. niger* nests near Oxford, and suggests it may be *Paracletes*. This, however, is not the case, I have taken the same *Aphis* in some numbers with *L. niger* at Islip near Oxford, on May 13th 1910. It is one of many species of Myrmecophilous *Aphidae* I have not yet been able to get named.

ARANEINA.—*Micarisoma minimus*, C.L.K.—I found this spider again this year with *F. fusca* at Box Hill, on April 4th and 22nd, and in a nest of *M. scabrinodis* on the latter date. Randell Jackson who records[38] it, with a plate, joined me at Box Hill on May 14th, and took a fair number of specimens under stones, etc. The day was very wet and the ants' nest a failure.

Thyreosthenius biovata, Camb., occurred as usual in most of the *F. rufa* nests I worked, including Wellington College, on May 6th. On November 20th, a ♂ and on December 1st, a ♀, bred out of my *F. rufa* nest. I introduced them on those dates into my *F. rufa* and *F. fusca.* var. *fusco-rufibarbis* mixed nest. They walked about amongst the ants, were not attacked and did not attack the ants. They did not jump aside when they met an ant, as I have noticed this spider do before. On December 19th, both spiders were alive and well. The ♀ made a small web in a corner of the nest and sat in it, but the ♂ was generally among the ants. No ants got intangled in the web and none have been killed. The ♂ is dead to-day, December 27th, possibly for want of food as there is nothing for them to eat; it lived however for over a month in this small nest.

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[35] *Psyche.*, xvii., 1910, pp. 3 and 5.
[36] *Ent. Rec.*, 1910, p. 16.
[37] *Ent. Rec.*, 1911, p. 24.
[38] *Lancs. Nat.*, 1911, pp. 385-6.

Cryphoecia recisa, Camb.—A ♀ was taken with *L. umbratus* at Weybridge, on April 20th, and two ♀s, with the same ant at Wellington College, on May 6th. The spiders were underground with the ants. Another ♀ and two young ones were found in the galleries of a *F. rufa* nest under a heavy stone at Porlock, on April 28th. Randell Jackson tells me he believes this spider to be the ♀ of *Tetrilus arietinus*, Thor., of which the ♀ is unknown, as is the case with the ♂ of *C. recisa*.

Evansia merens, Camb.—Was found in nests of *F. fusca* at Rannoch on June 10th and 14th.

Hahnia helveola, E.S.—Two in a nest of *L. fuliginosus* at Oxshott, June 1st.

Micaria pulicaria, Sund.—Again with *F. sanguinea* at Woking, May 6th.

Harpactes hombergi, Scp.—In nests of *F. fusca* var. *fusco-rufibarbis* and *L. niger* at St. Issey, on April 25th.

CRUSTACEA.—*Platyarthrus hoffmanseggi*, Brandt.—In 1909 [39]Standen writes—"The nest of *Formica flava* appears to be the principal habitat of *Platyarthrus*, indeed, I can only find one solitary record of its occurring along with any other species, *viz.*, in the nest of *Myrmica rubra*, where it was observed by Mr. E. E. Lowe, at Newton Ferrers (Webb and Sillem)." This, however, is by no means the case; in 1902[40] I record that I have taken it in Britain with *F. rufa*, *F. fusca*, and *F. sanguinea*, *L. flavus*, *L. fuliginosus*, *L. niger*, *L. umbratus*, and *L. alienus*, *M. scabrinodis*, *M. laevinodis* and *M. sulcinodis*. I also mention the seventeen species of ants with which Wasmann[41] recorded it. Hogan,[42] who first discovered it in Britain, found it with *F. rufa*, *L. flavus*, and *L. niger*, at Lulworth Cove. This year I have found it with *F. fusca* at Box Hill, April 13th and 22nd; *L. flavus* at St. Issey, April 25th; *L. niger* at St. Issey, April 25th, and Porlock, April 27th; *Tetramorium caespitum* at St. Issey, April 25th; *M. ruginodis* at Porlock, April 28th; *L. umbratus*, *L. fuliginosus* and *F. rufa* at Wellington College, May 6th; and *M. scabrinodis* at Box Hill, May 7th. In 1910 Crawley[43] records it with *L. flavus* and *L. niger* from Oxfordshire and Surrey, and gives some interesting experiments which show the ants do not always treat the wood-louse in the same way. On May 3rd I introduced six *Platyarthrus* from a *Myrmica* nest at Boxhill, into my *L. flavus* nest. The *L. flavus* ☿s soon killed them all. On April 14th I introduced specimens from Box Hill into my *F. fusca* nest from Hartlepool. These were not attacked, and bred in this nest, a number of little ones being seen. They lived till September, when the nest was destroyed by having been kept too dry.

CORRIGENDA.—p. 5, l. 29, for "Cavora" read "Cavara," and for "*formicorum*" read "*formicarum*." p. 6, l. 2, for "Myrmecocorous" read "Myrmecochorous," l. 21, for "*Dolidoclerinae*" read "*Dolichoderinae*." p. 7, l. 10, for "Hübner," read "Hüber," l. 33, for "strong" read "stony." p. 8, l. 17, for "*fusca*" read "*fusco*."

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[39] *Lancs. Nat.*, 1909, p. 242.
[40] *Ent. Rec.*, 1902, p. 70.
[41] *Krit. Ver. d. Myr. u. Ter. Arth.*, 1894, p. 201.
[42] *Nat. Hist. Review*, vi., 1859, p. 109.
[43] *Ent. Rec.*, 1910, p. 129.

A Month in Switzerland and elsewhere.

By GEORGE WHEELER, M.A., F.Z.S., F.E.S.

(*Continued from page* 4.)

(x.) THE ALBULA PASS.—A beautiful and interesting journey landed us in the evening of July 7th at Bergün, the last station but one before the Albula tunnel, and as this was our resting place till we left Switzerland, it will perhaps be best to take my experiences on the Albula Pass next, although my first day's hunting was in the Engadine and the Rosegthal. My Baedeker being an old one I did not know that there was accommodation at Preda, at the entrance to the tunnel, but if I am ever in this neighbourhood again (unless it were in May or early June) I should choose the latter for my headquarters, as the best hunting-ground begins close to the station, and more than half an hour is wasted in getting there by train, wasted that is except for the wonderful beauty and interest of the line with its glorious stone bridges, each made exactly for its own place and looking as if it could belong to no other.

I made two expeditions to the top of the pass. On the first occasion, July 9th, I was delayed long at Preda by the numbers of butterflies both on the slope leading up from the station, and in the flat meadow, (evidently at one time the bed of a small lake), on the other side of the road, this being the first time this year that I had seen butterflies in Switzerland in anything like abundance. The most conspicuous species was *Brenthis pales*, the ♂s, large, fresh, and very brilliant, var. *isis* one would have said unhesitatingly, but that the undersides were not very yellow, the ♀s all being var. *napaea*, varying a good deal in the depth of the ground colour, but universally boasting of bright reflections of a pale but brilliant heliotrope colour, on the whole the most beautiful form I have ever met with. Besides these there were a few, both ♂s and ♀s, of the usual mountain form of *B. pales*, which higher up became the only form to be seen. I should much like the opportunity of breeding *B. pales*, var. *isis* (with var. *napaea*), and var. *arsilache*: the three are superficially abundantly distinct, they differ in their habits, flight, and localities, though not so greatly in the last as in their appearance, since *isis* sometimes overlaps *arsilache* on the one hand and *pales* on the other. In speaking thus, I include under *isis* all the large, square-looking ♂s, even when they have not a very conspicuous quantity of bright sulphur yellow on the underside of the hindwing, for they are always distinctly yellower and less purplish-red on this wing than the high-mountain *pales*, and of course differ still more markedly in in this respect from the marsh-land *arsilache*: the ♀ var. *napaea* of course belongs to *isis*, and is perhaps the most usual form of the ♀ of that variety (or species). *Erebia pharte* was also common here and fairly fresh; by the side of the road were one or two specimens of *Brenthis ino*, and on the road itself *Erebia ligea* var. *adyte* was in some numbers and continued to be so for a considerable distance; further up a few *E. melampus* and *E. tyndarus* were by the road-side among the grass. On this occasion, knowing no better, I followed the road, and between Preda and the little lake of Palpuogna came across *Parnassius delius* in a marshy place on the right, and *Cyaniris semiargus* in the drier meadows. At this point the sun went in, except for occasional

gleams, and I saw little but a few typical *Brenthis pales* of both sexes. The whole way up the Pass it became duller and colder, and on reaching the Teufelsthal it would have been impossible to find any scene more dreary, lonely, and (in its strictest sense), awful; I felt at once that if I were an artist, instead of a mere dabbler in water-colour landscapes, I would choose this wild, desolate valley, strewn with huge boulders from the granite peak on the right, and smaller débris from the limestone crags on the left, as the scene for a picture of the Temptation; so far does its obvious suitability exceed any inaccuracies of detail. Naturally it was only just before emerging from this scene of desolation that anything in the way of a butterfly put in an appearance, and then it was a single typical specimen of *E. gorge*. Just before reaching the top of the pass there is a small depression in the grassy slope to the right which looks as if it would cut off a corner, and on to which I made my way; here, in spite of a wind of piercing coldness and the complete absence of sun, a small insect got up under my feet and flew for a yard or two close to the ground, I placed my net over it, and instantly found it to be the long coveted *Melitaea asteria*; for an hour and a half I waited about in this spot, (where I shortly took a second), and beyond and below it, seeing one *Colias palaeno*, a few *Melitaea merope*, (I refrain intentionally from saying *aurinia*, var. *merope*), and *Brenthis pales*, one or two *Erebia lappona* and several black and white "skippers," all but one of which proved to be *Hesperia andromedae*, the one exception being *H. cacaliae*. It will save further reference to the top of the Pass, if I say at once that on my second expedition to this point on July 13th, a bright sunny day, I came across the same species with the exception of *C. palaeno*, *M. asteria* being common but very local, confined, in fact, to the flowery dip in which I first found it, and the "skippers" exactly changing places, all but one on the second occasion being *H. cacaliae*. I started, on the 9th, to go down the Pass by a path on my right, but was stopped by an assurance that it was forbidden, on the ground of something or somebody being "krank," but the speaker's German and mine being about equally bad, I could only grasp the fact that I must return by the road, a long and very unprofitable détour. However, the weather became warmer and the gleams of sun more frequent as I got lower, and after passing the Weissenstein Inn I began to see some butterflies again. The species were not very numerous nor were the specimens, but I came across *C. phicomone*, which I also saw near Preda station, *Erebia pharte*, *E. tyndarus*, *E. stygne*, *E. ligea* var. *adyte*, *Agriades coridon*, *Loweia subalpina*, two small *Hesperia alveus* (I believe), one of which has a short white streak on the left hindwing, upper side, and one specimen of *Hesperia andromedae*. At Preda I was too late for the train, and had to continue the descent on foot to Bergün, finding nothing on the way except a few *E. stygne*.

The morning of the 10th was wet, but it cleared up in the afternoon and I confined my attentions to the neighbourhood of Bergün. This of course is famous as one of Zeller's great hunting-grounds, and also attracted the attention both of Frey and Rühl, but in July it hardly seems a rich locality. I took both *Melitaea athalia* and *M. aurelia*, but if the specimen I found of the latter is to be regarded as var. *rhaetica*, Rühl, then every example from the Rhone Valley must also be considered to be such; as to *M. athalia*, though the specimens

are quite peculiar in having a very broad almost undivided and nearly unicolorous central light band on the underside hindwing, they do not approach var. *helvetica*, Frey, except in the matter of this band being somewhat whiter than usual. Near the torrent I took single examples of *Parnassius apollo* and *P. delius* within a few yards of each other, each species showing some approximation to the other. One or two fine dark *Melitaea dictynna* were taken and a couple of very fresh *M. didyma*, ♂s; *Erebia stygne* was common at the roadside, as was *Agriades coridon*, and it was curious to see obviously hybernated *Aglais urticae* flying side by side with others evidently just emerged. Two typically mountain forms were also met with, *Pieris napi* var. *bryoniae* and *Hesperia andromedae*, one specimen only of the latter, but that one the largest and finest in colour that I have ever seen. Near the torrent I saw a few *Plebeius aegon* and one or two *Lycaena arion*, but Lycaenids were not a strong point of this locality.

My second expedition to the Albula Pass took place, as I have already mentioned, on the 13th. I did not delay long at Preda this time and took the short cut to the beginning of the road above the lake of Palpuogna. At the beginning of this short cut I made two interesting captures. Seeing a *Melitaea* skim past me which looked rather like a ♀ *cynthia*, I pursued it as well as I could on the broken ground, but in vain, on returning, however, to the path I netted a similar specimen, which turned out to be *M. maturna* var. *wolfensbergeri* very worn, as were a few others I saw, but establishing this new locality for the species. The other insect was a ♀ *Brenthis euphrosyne* in fresh condition, and having in every respect except size the appearance of the boreal var. *fingal*. Between Palpuogna and the Weissenstein Inn, I found the same species as on the previous occasion, but they were commoner; on reaching the latter place, however, I made enquiries from some workmen, who assured me there was no reason whatever why I should not go up the Pass by the track on the left hand side, and I did so, thereby coming across *Erebia glacialis* in considerable numbers on the shaly slope shortly before the Teufelsthal (in this dreary spot itself I actually took one specimen), as well as *E. gorge*, type and ab. *erynnis* chiefly, though var. *triopes* appeared as a scarce aberration. In the same way, although one ♀ *E. glacialis* did just show tiny white pupils to the eye-spots, thus approaching *alecto*, the rest were all of the *glacialis* or the *pluto* form, the ♂s mostly of the latter. In fact the Albula Pass, on the western side at any rate, belongs typically to the Central Alps, whereas the Bernina, the next Pass eastwards, belongs typically to the Eastern Alps. On returning by the same track, after visiting the top, as previously mentioned, I took, not far above the Weissenstein Inn, a very fine specimen of *Parnassius delius* var. ♀ *nigrescens*, which, on the wing, looked almost black. Lower down I took a cart track bearing to the right, which gradually dwindled to a path through long grass, finally rejoining the road at the beginning of the short cut to Preda. This is much to be recommended, there were many butterflies, mostly of species already noted, but including *Vacciniina optilete;* I was, however, sadly hurried, being obliged to catch the train at Preda, as we were leaving the same afternoon for Bâle, on the return journey to Paris, Havre, Southampton (for Lyndhurst) and home.

(To be concluded.)

SCIENTIFIC NOTES AND OBSERVATIONS.

FOOD-PLANT OF HESPERIA SIDÆ.—I notice that in the December number of the *Record*, vol. xxiii., p. 318, Mr. P. P. Graves asks if I can tell him what is the food-plant of *Hesperia sidae*. I don't know his address, so I cannot write directly to him, but perhaps you could let him know by means of a note in the *Record* that the food-plant of *sidae* at Hyères is *Potentilla hirta*, L. In all its localities round Hyères this plant is to be found, but in captivity I have been able to feed the larvæ on other and commoner species of *Potentilla*. The orange-yellow bands on the underside of the secondaries are very rich when the specimens are fresh, but they pale rapidly, and it seems to me probable that the specimens with pale ochre bands, which Mr. Graves mentions, had been on the wing a few days, although they might not show any other sign of age. I think that a paper I wrote concerning the early stages of *H. sidae* will appear before long in the *Transactions of the Entomological Society of London*.—H. POWELL (F.E.S.), 7, Rue Mireille, Hyères, Var. *January 4th*, 1912.

VARIATION IN EUCHLOË EUPHENOIDES.—I can confirm Lieut.-Col. Mander's observation on *E. euphenoides* from South-Eastern France. In Dr. Siepi's collection there is a remarkable male specimen with a splendid orange-red border on the secondaries. It was taken in the Vallon de Forbin at St. Marcel, near Marseilles, on May 10th, 1908.—IBID.

NOTES ON COLLECTING, Etc.

FROM ALGIERS.—I returned from Aflou, in Algeria, about a month ago, fairly well satisfied with the result of the expedition. It was a very interesting locality, and I sent M. Oberthür some good insects. Butterflies were rather scarce, but there were numbers of interesting moths. I did a good deal of larva breeding. The heat was quite bearable, in fact it was as cool there as in Europe last summer, but then Aflou is very high up, over 4,500 ft.—H. POWELL, F.E.S., 7, Rue Mireille, Hyères, Var. *January 4th*, 1912.

ISSORIA LATHONIA.—On July 29th last year, while gathering some food-plant in the neighbourhood of this place (Ilfracombe), I saw a ♀ *Issoria lathonia*. Having no net with me at the time I "went for" her with my hat, and although I managed to hold her for a moment, she eventually escaped. I have hesitated to record this heretofore, knowing that little credence is attached to a statement of this kind unless actual proof can be produced. My friend, Mr. C. W. Colthrup, of East Dulwich, however, thinks that it should be recorded.—R. ASHTON NICHOLS, 30, High Street, Ilfracombe. *January 27th*, 1912.

CURRENT NOTES AND SHORT NOTICES.

For the past twenty years, as many of our readers know, Mr. G. H. Verrall annually invited a number of his personal entomological friends, together with those gentlemen serving on the Councils of the more known Societies, to meet the Entomological Club at the Holborn Restaurant in London; but with his death it appeared that this Meeting would also die; a strong feeling, however, that it would be contrary to the wish of the late Mr. Verrall for the gathering to

lapse, induced the Rev. F. D. Morice (President of the Entomological Society) and other entomologists to take up the matter, and with the hearty co-operation of Mr. J. E. Collin, invitations were sent out to a large number of entomologists to meet them on the evening of January 16th. More than one hundred acceptances were received, and a very pleasant evening was spent. Tea and coffee were served from 6.30, and at 8.30 an adjournment was made to the large dining room where supper was served, and the party broke up about 11. Among those who were present we noted the following :—Messrs. R. Adkin, H. W. Andrews, E. A. Atmore, E. E. Austen, P. J. Barraud, M. F. Bliss, Rev. E. N. Bloomfield, Dr. Malcolm Burr, E. C. Bedwell, R. S. Bagnell, A. W. Bacot, J. P. Barrett, G. Bethell, K. G. Blair, W. E. Butler, A. Cant, J. Carpenter, F. M. Carr, G. C. Champion, H. G. Champion, F. Noad Clark, Dr. T. A. Chapman, J. E. Collin, M. Cameron, H. Capper, E. A. Cockayne, C. W. Colthrup, W. C. Crawley, Dr. F. A. Dixey, H. C. Dollman, H. St. J. K. Donisthorpe, Hamilton Druce, Stanley Edwards, E. A. Elliott, H. M. Edelsten, J. Edwards, F. W. Edwards, A. B. Farn, F. W. Frohawk, C. J. Gahan, A. E. Gibbs, F. Gilliatt, T. W. Hall, P. Harwood, H. Hodge, Prof. Selwyn Image, O. E. Janson, O. J. Janson, P. H. Jackson, J. H. A. Jenner, F. B. Jennings, F. Jenkinson, A. H. Jones, E. C. Joy, N. H. Joy, Dr. K. Jordan, W. F. Kirby, R. W. Lloyd, W. J. Lucas, Hugh Main, R. S. Mitford, Rev. F. D. Morice, Claude Morley, H. Maxwell-Lefroy, Rev. A. M. Moss, G. Meade-Waldo, W. E. Nicholson, J. A. Nix, H. E. Page, R. M. Prideaux, Hon. N. C. Rothschild, H. Rowland-Brown, N. D. Riley, A. Russell, H. A. Sauzé, W. E. Sharp, W. G. Sheldon, A. Sich, P. F. Skinner, A. J. Scollick, G. O. Sloper, E. A. Smith, E. Step, H. Scott, B. H. Smith, Lieut.-Col. F. W. Sampson, Rev. C. F. Thornewill, J. R. le B. Tomlin, A. E. Tonge, Hy. J. Turner, C. J. Wainwright, Com. J. J. Walker, Rev. G. Wheeler, C. O. Waterhouse, E. A. Waterhouse, J. Wright, Col. J. W. Yerbury. It is evident that an annual social meeting of this character is much appreciated by entomologists generally, and we hope that it will not be allowed to drop. Possibly it may be continued in the future more directly under the auspices of the Entomological Club. At any rate, we must commend heartily the action of the President of the Entomological Society, the Rev. F. D. Morice, for his suggestion of a method, whereby the meeting was able to be held on this occasion, and we must also thank those gentlemen who so ably supported him in his action.

The following is a List of Officers and Council appointed by the Entomological Society of London for the ensuing year. President :—The Rev. F. D. Morice, M.A. Treasurer :—Albert H. Jones. Secretaries :—Commander James J. Walker, M.A., R.N., F.L.S., and the Rev. George Wheeler, M.A., F.Z.S. Librarian :—George C. Champion, A.L.S., F.Z.S. Council :—Robert Adkin ; G. T. Bethune-Baker, F.L.S., F.Z.S.; Malcolm Burr, D.Sc., F.L.S., F.Z.S.; H. St. J. K. Donisthorpe, F.Z.S.; John Hartley Durrant; Stanley Edwards, F.L.S., F.Z.S.; A. E. Gibbs, F.L.S., F.R.H.S.; W. E. Sharp; Alfred Sich; J. R. le B. Tomlin, M.A.; Henry Jerome Turner; and Colbran J. Wainwright.

The list of Officers and Council of the South London Entomological

and Natural History Society for the ensuing year is as follows:—President:—A. E. Tonge, F.E.S. Vice-Presidents:—W. J. Kaye, F.E.S., and B. H. Smith, B.A., F.E.S. Treasurer:—T. W. Hall, F.E.S. Librarian:—A. W. Dods. Curator:—W. West (Greenwich). Hon. Secretaries:—Stanley Edwards, F.L.S., F.Z.S., F.E.S., and Henry J. Turner, F.E.S. Council:—C. W. Colthrup; F. W. Cowham; A. E. Gibbs, F.L.S., F.E.S.; R. A. R. Priske, F.E.S.; A. Russell, F.E.S.; A. Sich, F.E.S.; and E. Step, F.L.S.

From the *Annual Report of the Lancashire and Cheshire Entomological Society* for 1910, which has only recently reached us, having been wrongly directed, we learn that the Council of the Society desire at an early date to publish their Local Lepidoptera List, the MS. of which has been accumulating for some years past. An appeal is made to all members and friends to subscribe for copies, and the Report itself has been much curtailed so that at the end of the year the balance may be available to swell the publication fund. We wish this project success, for such publications are most useful and important.

In the December number of the *Entomological News* is an account, with portrait, of the late Rev. Dr. McCook, the author of that *opus magnum*, *American Spiders and their Spinning Work*, a Natural History of the Orbweaving Spiders of the United States with special regard to their industry and habits, who passed away on the last day of October. "By a peculiarly happy conjunction of capacities Dr. McCook was profoundly equipped as an investigator and was also a skilful writer. His works, therefore, are a happy combination of scientific accuracy and of the charm which we usually look for only in romances." His later writings have been of a more popular character, and we recall with pleasure the perusal of that charmingly written work *The Tenants of an Old Farm*, which we obtained from a second-hand bookstall for a few pence, a short time ago.

In the December number of the *Canadian Entomologist* F. Alexander McDermott, of Washington, contributes an article entitled "Some further Observations on the Light-emission of American *Lampyridae*: The Photogenic Function as a Mating-adaptation in the *Photinini*," (American Glow-worms). Of the value and interest of the results of this carefully organised series of observations the two following extracts will give some idea. "The first observations were made upon *Photinus pyralis*. It was soon found to be easy to recognize the flash of a female in answer to that of a male flying above her, but it was not so readily determined that her answering flash had any effect upon the actions of the male. The flash of the female, while of the same colour as that of the male is easily recognised after a little practice, being slower—or rather of longer duration—and less intense. Persistent watch, however, was rewarded by seeing the male drop, following the answering flash of the female, flash again and drop still lower after her second answer, alight a few inches away from her, crawl towards her slowly, flashing at intervals—to each of which flashes she responded—and finally locate and copulate with her. The complete mating process was not followed until after several failures, where the male after dropping would rise again, or would simply fail to locate the female definitely, and fly away; but since being observed once the same entire process has been witnessed a number of times, and under

somewhat differing conditions. . . . The answering flash of the female does not occur immediately after the flash of the male, but at a period—apparently approximately constant for all females of this species—of about three to four seconds after the flash of the male. This slight delay occurs in every normal case of mating observed with this species, *P. pyralis*." "To test this matter further, and to see if the females were sensitive to light in the field, as had been observed in the laboratory, a number of safety matches were ignited at irregular intervals above an area of a field where there were known to be a number of females of *P. pyralis*, the match, during the flare of the chemical 'head' being swung in an arc in imitation of the dipping flight and flash of the male *P. pyralis*, and being extinguished as soon as the head burned out. *In each instance the flash of the match was followed, within two to five seconds, by the flashes of females of P. pyralis in the surrounding grass and weeds.* . . . By the use of a small electric bulb connected to a battery and push-button, a few feet away, it was found quite as easy to deceive the male *P. pyralis*."

In the same number of this magazine is an article by Henry H. Lyman of Montreal, entitled "Notes on the North American species of *Grapta* (*Polygonia*) in the British Museum." It appears that Mr. Lyman brought over with him "authentic specimens of nearly all the known species," and in the article he criticises practically each specimen in the national collection showing that this group of difficult species is in an almost hopeless tangle. Let us hope that some attempt will be made to accept the results of the work of such a specialist. Unfortunately the results of modern investigation are often ignored absolutely by the museum authorities. Only within the last few days the case of the genus *Hydroecia* was brought to our notice. In the last volume of the *Catalogue of the Noctuidae* now being issued by the Trustees the results of the valuable and convincing work of the Rev. C. R. N. Burrows and Mr. F. N. Pierce is discarded, and *Hydroecia nictitans* is the only species recognised, although these gentlemen offered to place the whole of the evidence of the distinctness of *H. lucens*, *H. paludis*, and *H. crinanensis* at the disposal of the author. It is a pity these results are not included, as in a work of world-wide circulation one does expect to find the latest facts brought out by new lines of investigation.

SOCIETIES.

ENTOMOLOGICAL SOCIETY OF LONDON.—*November 15th*, 1911.—The Rev. Samuel Proudfoot, 6, Lyme Grove, Altrincham, Cheshire, was elected a Fellow. A NEW ZEALAND WEEVIL.—Commander Walker exhibited three specimens of *Phaedrophilus o'connori*, Broun, a large and handsome weevil from Mount Quoin, Kaitoke, New Zealand. A RARE TORTRIX.—Commander Walker also exhibited a specimen of the rare Tortrix, *Phalonia* (*Eupoecilia*) *implicitana*, Wocke, taken by Mr. H. G. Champion at Shoreham, Sussex, August, 1911. A NEW BRITISH ANT.—Mr. W. C. Crawley exhibited a ♀ and a ☿ of *Leptothorax tuberum*, Fabr., subspecies *corticalis*, Schenk, new to Britain, found with two larvæ in an empty beech-nut at Pangbourne, Berks, April 24th, 1904. A COCCINELLID AND MIMOSA GUM.—Mr. N. S. Sennett exhibited

some Coccinellids as found on *Mimosa* trees at Mont Estoril, in Portugal, together with the small exudations of gum, presenting what appeared to be a remarkable though hitherto unrecorded case of Protective Mimicry. BRED PYRAMEIS CARDUI.—Mr. L. W. Newman showed a long series of *Pyrameis cardui*, bred from ♀ s captured at Folkestone on September 2nd last. Ova were laid at once and placed in a hot-house kept at about 80 degrees; they hatched on September 7th, and the larvæ fed up very rapidly on stinging nettle, the first pupating on September 30th. Imagines started to emerge about a week later, and all were out by October 16th—some 500 in all. Considerable variation occurred. RARE DIPTERA.—Mr. H. W. Andrews exhibited two rare species of Diptera from north Kent, *viz.*, *Syrphus lineola*, Ztt., a ♂, taken at Bexley on July 8th, and *Sciomyza simplex*, Fln., both sexes, taken in the Thames Marshes on June 23rd and July 1st, all in 1911. A PROBABLE SPECIMEN OF CIDARIA CONCINNATA.—Mr. E. A. Cockayne exhibited a Geometer taken at Tongue, Sutherland, July 5th, 1906, closely resembling *Cidaria* (*Dysstroma*) *concinnata*, Steph., specimens of which were placed below for comparison. SOME LOCAL FORMS OF MELANARGIA GALATHEA.—Mr. J. Platt Barrett exhibited a drawer of *Melanargia galathea* containing: English specimens, specimens from the Alps, from the Apennines, from Calabria, and from Sicily, including var. *procida*, and var. *syracusana*. A GIGANTIC SPIDER.—Mr. A. E. Tonge exhibited a very fine *Mygale* from California. RHODESIAN INSECTS AS PREY.—Professor E. B. Poulton exhibited the following specimens sent to him by Mr. C. F. M. Swynnerton, all of which had been captured on the outskirts (3,800 ft.) of Chirinda Forest, Gazaland, S.E. Rhodesia: (1) The female form *hippocoon* of *Papilio dardanus* (*cenea*), Stoll, rescued, September 8th, 1911, by one of his native collectors from a M'lanje Bulbul (*Phyllostrophus milanjensis*); (2) Two wings of *Precis archesia*, Cr., and the fragments of a Blattid, probably of the genus *Deropeltis*, taken June 25th, 1911, from a spider's web. A NEW AFRICAN LYCAENID.—Professor Poulton exhibited six male examples of a remarkable Lycænid, all captured, November 22nd, 1910, in the Uhehe District (3,000-3,500 ft.) of German East Africa, by Mr. S. A. Neave, F.E.S. The pattern and brilliant colours, which were extraordinary in a Lycænid, strongly suggested, on both upper and under surface, the appearance, although on a smaller scale, of an *Acraea* of the type of *A. anemosa*, Hew. AN ABNORMAL COLEOPTERON.—Mr. Stanley Edwards exhibited a specimen of *Oxynopterus audouini*, a beetle from Borneo, with abnormal antennæ, apparently gynandromorphous, and explained that Mr. Gahan had dissected it and found the genitalia to be entirely ♀. SCARCE COLEOPTERA.—Mr. H. C. Dollman exhibited the following species of Coleoptera:—*Philonthus intermedius*, Bois., ab. *donisthorpei*, Dollman, described in the *Ent. Rec.*, December, 1910; *Stenus formicetorum*, Mann., introduced as British in the *Ent. Rec.*, April, 1911; *Bembedium quadripustulatum*, Dj., an example from Ditchling, Sussex, August 17th, 1911; *Hypophlaeus linearis*, F., retaken at Oxshott, in July of this year, a species hitherto taken in Great Britain, only in Surrey, at Oxshott and Woking; *Mycetoporus forticornis*, Fauv. (one specimen from the New Forest), with *M. clavicornis*, Steph., for comparison; *Philonthus corruscus*, Gr., taken

from a dead rabbit at Ditchling; and *Stenus morio*, Gr., from Ditchling, taken in October, 1910. BRED SERIES OF ACRAEA ORESTIA AND A. HUMILIS.—Mr. H. Eltringham exhibited a bred series of *Acraea orestia*, Hew., containing the typical form, and also the *A. humilis* of Miss E. M. Sharpe, thus demonstrating the truth of the conclusion at which he had previously arrived as to the specific identity of these two forms. He also showed three ♂ black and yellow Acraeas, one of which was the *A. circeis* of Drury from S. Leone. The other two while differing in appearance from *A. circeis* were themselves exactly alike, but for the fact that the two tarsal claws of the second and third pairs of feet were equal and similar in one specimen, and unequal and dissimilar in the other. A long and interesting discussion followed on the question of the importance of the tarsal claws as a means of specific distinction, and on the possible correlation of uneven claws in the ♂, and the abdominal sac in the ♀. DESCRIPTIONS OF BRITISH RHOPALOCERA.—Mr. Champion called attention to a paper by M. Roger Vérity in the "Bulletin de la Société entomologique de France," October 11th, 1911, on new Scottish races of *Erebia aethiops*, Esp. (race *caledonia*), *Satyrus semele* (race *scota*), and *Pararge megaera* (race *caledonia*). The following papers were communicated:—"Descriptions of South American Micro-Lepidoptera," by E. Meyrick, B.A., F.R.S. "New Species of Hawaiian Hymenoptera, with notes on some previously described," by R. C. L. Perkins, D.Sc., M.A., F.E.S. "Notes on Hawaiian Hemiptera, with descriptions of new Species," by R. C. L. Perkins, D.Sc., M.A., F.E.S. "Experiments in the Formation of Colonies by *Lasius fuliginosus*, ♀ s," by Horace Donisthorpe, F.Z.S., and W. C. Crawley, F.E.S.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY. —*Annual Exhibition of Varieties, etc.—November 23rd.*—The Rev. F. D. Morice, M.A., F.E.S., was elected a member.—Mr. South exhibited an extreme melanic aberration of *Brenthis selene*, a dark-banded *Ephyra linearia*, *Rumicia phlaeas* var. *eleus*, *R. phlaeas* var. *schmidtii*, a fine series of varieties of *Leptogramma literana*, etc. Mr. R. Adkin, two series of aberrations of *Abraxas grossulariata* (*a*) from wild larvæ, (*b*) from inbreeding, and a *Zonosoma orbicularia* with the whole of the wings of a rich red-brown, etc. Mr. Blenkarn, varied series of *Amorpha populi* and *Bupalus piniaria*, and a *Brenthis selene* almost devoid of transverse markings. Mr. Newman, a series of *Mellinia ocellaris* including the forms similar to *M. gilvago* and *Citria fulvago*, a large number of the more striking varieties from the "Capper" collection, a lemon-tipped ab. of *Euchloë cardamines*, a *Brenthis euphrosyne* with black hindwings, a *Pyrameis cardui* with apex of forewing largely black, fine abs. of *Agriades coridon*, etc. Mr. A. Quarrington, a *P. cardui* with conspicuous blue spots, a yellow *Polygonia c-album*, *A. coridon* with large confluent spots, *R. phlaeas* with almost obsolete marginal bands, etc. Mr. Bright, a drawer containing all the finest extreme varieties from the collection of the late Mr. J. A. Clarke, and a drawer of varieties of *Amorpha populi* including a magnificent gynandromorph. Mr. Turner, a series of *Erebia aethiops* from Scotland (var. *caledonia*) and many continental localities, a long series of *Luperina nickerlii* including a fine series of the *gueneei* race from Mr. Baxter (St. Anne's-on-Sea), a set of the E. Pyrenean race *graslini* from M. Oberthür, and the type from Bohemia, many forms of *L. testacea* kindly sent him by

the same gentleman from France and Algeria, together with a number of *L. dumerilii* from the same localities. Mr. Main, long and fine series of *Boarmia repandata* bred by the late Mr. Harrison and himself, the results of crossing the dark and *conversaria* forms. The Rev. F. D. Morice, the smallest known bee, *Ceratina parvula*, and the largest bee, *Xylocopa* sp. ?, Gilbert White's "Hoop-shaver bee" *Anthidium manicatum*, the famous "Upholsterer bee" *Osmia papaveris*, and a Mediterranean snail-shell-inhabiting bee *O. ferruginea*, and also microphotographs of the "saws" of the sawfly genus *Dolerus*. The Rev. J. E. Tarbat, *Gnophos obscurata* from many localities, including ochreous and almost black forms from the same place, Budleigh Salterton. Mr. Barnett, a fine varied series of *Apamea leucostigma* and var. *fibrosa* from the Fen District. Mr. Schooling, a second brood *Arctia caja* with only an imperfect narrow fascia and a few apical and costal spots of cream colour on the forewings. Mr. Colthrup, a very long series of this year's *Colias hyale* from East Kent. Mr. B. H. Smith, a *Melanippe montanata* almost white, *Catocala nupta* with smoky brown hind wings, three *Agrius convolvuli* from Warlingham, with specimens of *Phryxus livornica*, *Sterrha sacraria*, *Laphygma exigua*, *Plusia ni*, and series of *Polia xanthomista*, and *Rumicia phlaeas*, including a partial var. *schmidtii*, all from South Cornwall in September last. Mr. Sich, the Gelechiid, *Argyritis pictella*, which used to occur on Barnes Common; and for Mr. Green, *Depressaria putridella* from its North Kent habitat. Mr. K. G. Blair, *Mimas tiliae* asymmetrical, teratological specimens, *Carabus catenulatus* with reflex margins of thorax excised, and *Pimelia fornicata* right antenna doubly branched, and for Mr. W. N. Blair, examples of the Medicinal Leech from the New Forest. Mr. Tonge, stereoscopic slides of lepidopterous ova *in situ*, wild laid, with specimens of the imagines of the genera *Trochilium* and *Ægeria*, and also varied bred series of *Cidaria truncata* (*russata*) and *Lobophora viretata*. Mr. Pratt, an extreme dark margined form of *Ephyra pendularia*. Mr. Baumann, *Hydriomena furcata* (*sordidata*) bred from Surrey with a black series from Manchester, very pale *Dianthoecia carpophaga* from the Sussex coast, etc. Mr. Scorer, aberrations of *R. phlaeas* longtailed, spotless underside, *P. machaon* heavily banded, *Euchloë cardamines* with white streak through the orange patch, *Porthesia similis* with black edged costa, *Callimorpha dominula* with rounded wings, *P. napi* ♂ heavily spotted, etc. Mr. St. Aubyn, two ab. *flava* of *A. filipendulae* from Coulsdon. The Rev. F. M. B. Carr, a collection made in mid-Wales last June, including *Plusia interrogationis*, a fine varied series, *Acidalia fumata*, *Agrotis lucernea*, etc. Mr. Andrews, dwarf Diptera, *Bombylius major*, *Eristalix pertinax*, and *Chrysochlamys cuprea*, and for Mr. Barraud, a teratological specimen of *Spilogaster uliginosa* with missing fourth longitudinal vein. Mr. Stanley Edwards, *Papilionidae*, *P. policenes*, and allied *P. lurlinus* and *P. nyassinus* from Africa compared with *P. ajax* and *P. marcellus* from America. Mr. Platt Barrett, ♂ and ♀ comparisons of British and Sicilian butterflies, *G. rhamni* and *G. cleopatra*, *Hipparchia semele* and var. *algirica*, *E. jurtina* with var. *hispulla* and var. *fortunata*, a long series of *Euchloë damone*, sets of geographical forms of *Melanargia galathea*, British, Alpine, Apennine, Calabrian, Sicilian, at various elevations, etc. Mr. Barnett, for Mr. Cannot, a *Wheeleria spilodactyla*, Freshwater, with no cleft in forewings and one only in

hindwings. Mr. Kaye, an unusually large spray of the magnificent orchid *Cattleya labiata*, five flowers. Mr. Pickett, results of breeding *Angerona prunaria* under coloured muslins, red, pink, orange-yellow, and cream with green pattern, and aberrational series of *M. galathea*, *Agriades coridon* (*semi-syngrapha*, *obsoleta*, *striata*, *minor*), etc. Mr. Sheldon, European *Diurni*, taken by himself in the Riviera, south Spain, Digne, etc., including fine series of *Zegris eupheme* var. *meridionalis*, *Thais rumina*, var. *canteneri*, var. *medesicaste*, and ab. *honoratii*, *Araschnia levana*, var. *prorsa*, and var. *porima*, etc. Mr. Frisby, nearly all the species of British bees in the genera *Andrena* and *Cilissa*. Mr. W. J. Kaye, a drawer of species of *Syntomidae* he had taken at flowers in South Brazil, and gave notes on their habits. *December* 14*th*, 1911.—Special Meeting.—It was agreed unanimously at an usually large meeting to increase the annual subscription to ten shillings, and the life composition to six guineas. Ordinary Meeting. —Mr. R. G. Todd, of Hadley Wood, Mr. G. E. H. Peskett, of Ilford, Mr. A. Quarrington, of Norwood, and Mr. E. A. Stowell, B.A., of Kingston, were elected members. Rumicia phlæas.—There was a special exhibition of *Rumicia phlaeas* and its allies. Mr. Tonge, series from S.E. counties and bred continental specimens; Mr. Newman, on behalf of Mr. Quarrington, ab. *schmidtii* and striated forms; the Rev. G. Wheeler, series from England, Italy, S. France and S. Switzerland, including suffused examples, ab. *caeruleopunctata*, ab. *bipunctata*, etc.; Mr. R. Adkin, representative series from Eastbourne this year, and analysed the variation occurring there; Mr. A. E. Gibbs, series from England, N.E. France, E. Pyrenees, Corsica, Algeria, Turkistan and Japan, together with many closely allied species from the Palæarctic and Nearctic Regions; Mr. Turner, series including his ab. *alba* from Brasted; Mr. R. South, a selection illustrating the ordinary variation, including ab. *schmidtii*, and pointed out how the variation of the American representative *hypophlaeas* had an almost parallel range; Mr. Cowham, ab. *schmidtii* from Oxshott; Mr. Frohawk, a long bred series of *C. dispar* var. *rutilus* from Continental ova; Mr. C. P. Pickett, long and varied series of four broods in 1911, and many aberrations during the past ten years; Mr. Edwards, closely allied Central and E. Asian forms; and Mr. Kaye, bred specimens. In the subsequent remarks it was noted that the species had appeared in great abundance even in gardens and streets, that there were extremely few striking aberrations, that the later broods were generally darker, that the larva hibernated in any instar, and that the species was by no means common in Switzerland. Hymenoptera.—Mr. West (Greenwich), exhibited a drawer of the Society's cabinet, in which he had arranged the British Hymenoptera recently presented to the Society. Swiss Lepidoptera. —Mr. Ashdown, collection of Lepidoptera taken by him in Switzerland and near Chamonix in June and July last. Aberrations.—Mr. Newman, a number of well-marked aberrations from the collection of Mr. Hills, of Folkestone. Blue ♀ P. icarus.— Mr. Quarrington, a fine blue ♀ of *Polyommatus icarus*. E. atomaria, vars.—Mr. Buckstone, a series of variations of *Ematurga atomaria*. Third generation of A. virgularia.—Mr. South, a long series of three generations of *Acidalia virgularia*, reared in 1911 from a ♀ taken at Bishop Auckland in 1910. Autumn-bred A. iris.—Mr. Joy, two

autumn-bred specimens of *Apatura iris*, the rest of the brood going over as larvæ as usual. DARK L. DEPLANA AND CAPTURE OF PERIPLANETA AUSTRALASIÆ.—Mr. Blenkarn, light and dark examples of *Lithosia deplana*, and a specimen of the cockroach *Periplaneta australasiae*, taken from a case of oranges from Jamaica. SEXUAL DIMORPHISM OF E. HALITHERSES.—Mr. Edwards, the remarkably sexually dimorphic species *Euripus halitherses*, of which the ♀ mimics a *Euploea*. H. SEMELE, VAR.—Mr. Pickett, a very richly marked aberration of *Hipparchia semele*. THE "TUGWELL HERBARIUM."—Mr. Step, a further portion of the "Tugwell Herbarium," which he had been renovating for the Society, and to contain which Mr. R. Adkin had most kindly given a handsome cabinet.

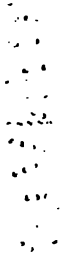
OBITUARY.

Samuel James Capper, F.L.S., F.E.S.

Samuel James Capper, of Huyton Park, Liverpool, President and founder of the Lancashire and Cheshire Entomological Society, passed away at his residence on the evening of January 21st., in his eighty-seventh year. He was a Londoner by birth and early came under the influence of natural history, for he was sent to a boarding school at Epping, where the brothers Doubleday did all they could to induce the young to take an interest in the local Lepidoptera. In course of time he settled in Liverpool and became a partner in the well-known firm of Thompson and Capper, manufacturing chemists. He soon met with the late Benjamin Cooke and other Lancashire collectors, and resumed his boyhood's pursuit, which he continued to follow with unflagging energy until a few years ago. In 1874 he met with an accident while collecting in N. Wales, and was henceforth too lame to carry on his field-work. Nothing daunted, if he could not go to entomology, entomology must come to him. In 1887 the Lancashire and Cheshire Entomological Society was inaugurated at his house in Huyton Park, himself as first President, an office he held until his death.

His written work has been small, but his Annual Addresses to the above Society show him to have been a man of very wide and deep reading, and one whose knowledge of entomology, gained by experience in the field, was no mean amount. In the *Ent. Record*, vol. x., p. 54, there is reprinted an address given by him on "Entomological Literature in Britain," and a portrait of him will be found in the *Brit. Nat.* (continuation of *Young Nat.*) vol. ii., p. 60. For many years he had taken every opportunity to add to his collections, which contained a very large number of interesting and unique varieties. In the *Naturalists' Journal*, vol. v., p. 20, etc., S. L. Mosley gives a most interesting account of a visit he paid to Huyton Park. Subsequently, a large number of the aberrations of British Lepidoptera in the collection, were figured by Mosley in his *Illustrations of Varieties of British Lepidoptera* and in the volumes of the *Naturalists' Journal*. During the last few years Mr. Capper's declining strength prevented his taking much interest in his insects, and finally last autumn he parted with the whole of them to Mr. L. W. Newman, by whom they are being dispersed. He was a member of the Society of Friends.—H. J. T.







Del. Hereward C. Dollman.

MYSIA OBLONGO-GUTTATA, L., AB. NIGRO-GUTTATA, N. AB.

(R. ANTENNA SHOULD BE EXACTLY LIKE L.)

Mysia oblongoguttata, L., ab. nigroguttata, n. ab. (*with plate*).

By HEREWARD C. DOLLMAN, F.E.S.

This is a striking aberration inasmuch as the elytra, usually quite unmarked with black in this species, exhibit six well-defined ivory-black spots. The two dark longitudinal lines on the thorax that are sometimes observable in normal specimens are in this aberration very strong, being unusually broad and black. The clubs of the antennæ, the femora wholly, and the tibiæ in part, are also black.

In contour, sculpture, and size, the specimen does not depart from the normal. The clypeus, the front of the head, the eyes, the first joint and club of the antennæ, and the apical portion of the last joint of the maxillary palpi black, with the base of the head (narrowly), and the other joints of the antennæ and maxillary palpi reddish-testaceous; thorax with the broad white borders narrowly margined with black (from posterior to anterior angles), and the dark longitudinal lines very broad and black; elytra light testaceous-brown, with the margins somewhat lighter, with the usual irregular light longitudinal lines and oblong spots, but each of the latter marked within with a large well-defined jet black centre; legs, with the exception of the apical half of the tibiæ and the tarsi, which are dark reddish-brown, black.

The type specimen beaten from *Pinus sylvestris* at Oxshott, Surrey, on July 4th, 1911.

Notes from the Wye Valley: Lepidoptera in 1911.

By J. F. BIRD.

The semi-tropical summer last year will, no doubt, be long remembered, and I do not think I need say more than that we, in common with the rest of England, sorely felt the want of rain. The whole country looked scorched up, the leaves fell off the trees, and not only did garden plants suffer, but many hardy wild flowers and weeds of the countryside shrivelled up and gave up the struggle for existence. The long spell of fine and hot weather was responsible for the second appearance of a number of species of Lepidoptera, and also one or two cases of even a third emergence occurred. Some rather dwarfed individuals were noticed, which is hardly to be wondered at considering the effects of the weeks of drought, but on the whole most appeared to be of average expanse of wing.

Before referring to some of the insects met with during 1911, I may mention that I recorded in the Wye Valley last year 262 species of Macro-lepidoptera (counting larvæ), or nearly one-third of those to be found in Britain. These notes, unless otherwise specified, will relate to the parish of St. Briavels in Gloucestershire.

Diurni.—*Pieris brassicae*, though common, was not unusually so; while the two smaller "whites," *P. rapae* and *P. napi*, were exceptionally abundant, especially during their second appearance. I noticed that many of the second brood of *P. napi* were strongly marked and exhibited one or two extra spots between the veins on the hindwings, the result, as I have previously noticed in the Wye Valley, of a hot summer. *Euchloë* (*Anthocharis*) *cardamines* was fairly common and many larvæ were found feeding on the seed-pods of *Hesperis matronalis*, which seems rather a favourite garden food-plant of the species. *Gonepteryx rhamni* was plentiful in the spring and also after the emergence of the fresh brood. *Bithys quercûs* was more

abundant than I have ever seen it. As I wished to obtain some ova I watched one of the females which seemed to be ovipositing while crawling up and down the twigs at the end of a low-hanging branch of an oak. She kept her abdomen curved so as to feel along the bark, and several times appeared to lay an egg below projections such as buds or the base of smaller twigs. After she had flown to another part of the tree I picked the twigs she had been on, but was disappointed not to find any ova, although I carefully examined with a pocket lense each spot, where I thought I had seen one deposited. Several of these butterflies forsook the tree-tops and were to be seen flying about and settling on bracken, and a male netted on August 9th was flitting about a hovel yard in the manner of *P. icarus* and alighting on nettles and other weeds. I also noticed one on a very hot day drinking on the wet mud by the river-side. *Rumicia phlaeas* swarmed everywhere and was noticed on the wing right into October. I fancy there were three broods during the year. On September 24th, I netted one ab. *radiata* ♀ going to the flowers in my garden. *Polyommatus icarus* was also very plentiful, and on several evenings I searched for aberrations among those asleep on the stems of grass, etc., and the two best, both taken on August 7th, were (i) a ♀ ab. *arcua*, and (ii) a ♂ with forewings of ordinary colour, but bordered with a blue of slightly paler shade, and the hind-wings with a marginal row of black spots. *Celastrina argiolus* was more in evidence during the summer than in the spring. In July I met with several of the males on the heather. A search on ivy in the autumn only produced one larva. *Apatura iris*.—During the summer I believe I saw three of these butterflies on the wing, but not clearly enough to say so for certain. However, I was presented with one by a non-entomological neighbour of mine, who captured it in August, 1910, while it was fluttering on a window in her house. The specimen, a female, is slightly asymmetrical, the wings on the left side being rather smaller than those on the right. *Polygonia c-album*.—I did not see a single hybernated specimen in the spring, although I was on the look-out for a female or two to send a correspondent, and, as luck would have it, when the summer brood were on the wing I only saw females when I was without my net. (If my correspondent reads this it will explain why he received none from me.) On August 24th, while paying a visit to my father at Tintern, I noticed one of the autumn brood just emerged and clinging to an empty pupa-case, which was attached to a wire for training creepers fixed on the side of a window. A search among the hop-plants growing close by produced several pupæ and one nearly full-fed larva. *Aglais urticae*.— During the scorching summer and the early autumn this butterfly frequently entered the house and settled in odd corners as if to hybernate, but after resting like this for a few days flew out again. One of these visitors suddenly became lively one night (September 7th) and began flying about our dining-room, and when it settled it did so on the ceiling immediately above the lamp with wings displayed as if basking in sunshine. I did not pay much attention to it at first, but it suddenly struck me, when glancing up at the butterfly, that there was something rather odd about it, so I bottled it. I afterwards found that the two black spots on the forewings between veins 2 and 4 were almost imperceptible. *Vanessa io* was again plentiful, but only two or three specimens were seen of *Pyrameis atalanta* and *P. cardui*. The

two early "fritillaries," *Brenthis euphrosyne* and *B. selene*, were abundant in their usual haunts, but *Dryas paphia* I did not see anywhere except in one spot by the side of the river where it was not scarce. *Pararge aegeria* and *P. megaera* were most plentiful, especially towards the end of the summer. One of the latter I saw lay an egg, which she deposited, as I have before noticed when observing this insect, on a dead and brown blade hanging downwards from a clump of grass growing at the edge and on the top of a wall. On August 23rd, one specimen of *P. aegeria* was noticed going to the treacle spread on a tree-trunk the previous evening to attract moths. Both *Epinephele jurtina* and *Aphantopus* (*Enodia*) *hyperantus* were as common as usual, but I only saw one or two *Epinephele tithonus*. This last species I have only found common along the hedges of one lane in this district. *Coenonympha pamphilus*, *Hesperia malvae*, *Adopaea flava*, *Augiades sylvanus* and *Nisoniades tages* were rather more plentiful than usual.

HETEROCERA.—*Amorpha populi*.—The ova and larvæ were not uncommon on poplar and sallow. Until last year I have only seen a very few each season. *Eumorpha elpenor*.—I have not yet found this species here, but last year my father obtained three larvæ on the Monmouthshire side of the river. *Sesia stellatarum*.—One only seen, in August, hovering at Sweet-William in my garden. *Aegeria tipuliformis*.—My father took one at Tintern in his garden; the only specimen noted by us in the Wye Valley. *Hepialus humuli* was most abundant in the meadows, and I obtained some rather nice forms, including a plain yellow female with practically no markings visible. *Hylophila prasinana*.—Netted at dusk and also taken in the larval stage. *Nola cucullatella*.—One at light on July 7th; the first I have seen here. Neither have we found it a common species in Monmouthshire. *N. confusalis*.—Only one last year. *Lithosia* (*Cybosia*) *mesomella*.—One only, caught with my hand as it flew past me at early dusk while I was fishing. *Nemeophila plantaginis*.—Not uncommon at the beginning of June. I find this moth is much attached to patches of bracken. *Arctia villica*.—I was pleased to see one of these handsome moths at Tintern, but the specimen, a ♂, was too worn to take. *Spilosoma* (*Phragmatobia*) *fuliginosa*.—In the Spring I found on one of my poultry-runs a newly-spun cocoon containing a larva. *Spilosoma mendica*.—Several females were seen in early summer flying in the daytime. *Porthesia similis*.—Two imagines only; the first I have seen on this side of the Wye. *Dasychira pudibunda*.—At light. *Fumea casta*.—The cases numerous on tree trunks and stone walls. The imagines of *Drepana falcataria* were commoner than usual and several of both broods were disturbed from the bushes or netted at dusk. I also bred one on August 22nd from a larva found on alder. *Cerura bifida*.—I was unfortunate in only finding empty eggshells of this insect on the poplar bushes, and I am afraid the wood-ants were responsible for my want of success in finding the larvæ. *C. vinula*.—Ova and larvæ were seen on sallow and poplar. *Notodonta* (*Leiocampa*) *dictaea*.—I failed in breeding this insect from the ova obtained in 1910, but hope I shall be more successful this season. Last year I found a few ova on the small poplar bushes and now have four pupæ. Larvæ were found of *Notodonta dromedarius*, *Lophopteryx camelina* and *Phalera bucephala*. *Diloba caeruleocephala*

was common at light in October. I found one or two of the larvæ feeding on *Cotoneaster*. *Gonophora derasa* and *Thyatira batis* were netted at dusk, but neither were very common. *Asphalia diluta* turned up at light, and also at treacle, in August. The larvæ of *A. flavicornis* were, as usual, abundant on birch bushes. *Acronycta leporina*.—Two fine specimens bred. *Jocheaera alni*.—On July 25th, a full-fed larva was found crawling on the path in a wood. It spun up a few days later in a dried hollow parsley stem. By a curious coincidence I found this caterpillar while walking with my father, and our conversation at the time was about another of these larvæ which he had found a few days previously on sloe in the New Forest, Hants. *Triaena tridens*.—My father bred a nice series, including one from a larva found here in 1910, the rest being the offspring of a female he took at Wicken. *Pharetra rumicis*.—I found a number of the larvæ on my strawberry plants at the end of June, and from those I kept, bred specimens of the second brood during the third week of July. *Agrotis puta*.—One at light and another netted at dusk. *Agrotis* (*Lycophotia*) *strigula*.—The first one netted was on June 9th. Is not this rather an early date? The earliest I have taken it before in this district has been July 4th. *Noctua festiva*.—The males, as usual, very common, but only two females netted. *Noctua triangulum*.—Netted at dusk. *Hadena pisi* is apparently rare in this district. I bred one from a larva found here on broom, and also a nice series from larvæ obtained on Barnes Common, Surrey, where I noticed them in hundreds. My Gloucestershire specimen is a much greyer moth than the Surrey specimens. *Mamestra brassicae*.—I only mention this common insect because I have never seen so many of the autumn brood before. They almost monopolised the treacled trees in August. *Dianthoecia capsincola* I captured at Sweet-William, the first time I have taken it here. *Polia chi* and *P. flavicincta* were noticed on the stone walls, the former being plentiful. *Agriopis aprilina*.—A few larvæ were found resting in crevices of the bark on oak trunks. A new record for us in the Wye Valley. *Miana fasciuncula*.—Several netted at dusk. I have only met with it before in this district on the Monmouthshire side of the Wye. Another new record for me here was *Gortyna ochracea* (*flavago*), and I bred several from pupæ found in foxglove stems. *Hydroecia micacea*.—A few taken between August 7th and 30th. *Taeniocampa miniosa*.—Five larvæ on oak which fed up very well until after the last moult, when for some unknown reason all but one died. *T. munda* absolutely swarmed in March on the windows, and I picked out a nice variable series. The larvæ were seen later on oak and pear. *Pachnobia rubricosa* was also attracted by the lamps in March and the beginning of April. In the autumn, visitors to ivy-blossom included *Triphaena pronuba*, *Miselia oxyacanthae*, including ab. *capucina*, *Caradrina quadripunctata*, *Amathes* (*Anchoscelis*) *helvola* (*rufina*), *A. pistacina*, *A. litura*, *A. lota*, *A. macilenta*, *Mellinia circellaris*, *Tiliacea citrago* (common, but mostly worn), *T. aurago* (2), *Orrhodia vaccinii*, *O. ligula* (*spadicea*) (the only one I have seen on this side of the river), *Scopelosoma satellitia*, *Xylina ornithopus* and *Plusia gamma*. *Citria flavago* ab. *flavescens*.—One splendid example netted at dusk in my garden on September 3rd. *C. fulvago* also netted in the garden. *Heliaca tenebrata* and *Phytometra aenea* were

not uncommon in the early summer. *Bryophila perla.*—A frequent visitor into the house attracted by the lamps. On September 7th, a very small ochreous specimen came to light. It was so fresh that I think it must have just left the pupa. Was this a case of retarded emergence, or of a partial double-broodedness? I am inclined to think the latter. *Scoliopteryx libatrix.*—Hybernated specimens were met with until June 7th, and the 1911 brood began to appear on July 30th. *Euclidia glyphica* was common; much more so than *E. mi.* Plenty of *Brephos parthenias* were seen in April, but as they kept well out of reach I only succeeded in netting one on the 13th of the month. *Bomolocha fontis, Herminia tarsipennalis, H. grisealis* and *Hypenodes costaestrigalis* were all met with at dusk. *Hypena proboscidalis* was as plentiful as usual, and a second emergence occurred in the autumn when I netted a small, but very well-marked specimen on September 4th. *Ourapteryx sambucaria* ab. *cuspidaria.*—I netted two specimens at dusk on June 27th and July 3rd. As yet I have only met with males of this form. *Venilia maculata.*—I captured a curious specimen on June 5th with the left forewing broadly banded with black. As the wings are slightly malformed, it is probable that this asymmetry was caused by some injury when in the larval or pupal stage. *Macaria notata* and *M. liturata* were both scarce. *Ematurga atomaria* was in abundance about the heath and variable. Between May 12th and June 7th I selected a few rather nice forms to add to our series. It may perhaps be interesting to note that when this species is disturbed *in cop.*, the female, although the smaller of the two, carries the male in flight. *Numeria pulveraria* was fairly common in my garden. I captured two specimens of *Ennomos erosaria* on July 22nd and 29th. Is not the popular name of the moth, *i.e.*, "September Thorn," rather misleading? *E. fuscantaria* was taken by my father at light in Tintern. I have not yet seen it over here. *Himera pennaria* was common at light in October, and more variable than usual. Two specimens I took have the basal portion of the forewings suffused with blackish up to the first line of the median band; while another specimen has all the wings clouded with grey scales. It may also be worth noting that a fine female was attracted by light on October 17th; a rather unusual occurrence I believe. *Pericallia syringaria, Epione advenaria* and *E. apiciaria* were netted at dusk. This is the first time I have seen the last-mentioned on this side of the Valley. *Phigalia pedaria.*—The larvæ were extremely abundant on oak, beech, etc. *Gnophos obscurata.*—Netted at dusk. *Tephrosia crepuscularia.*—I obtained specimens of three broods during the year; the first brood from May 1st to June 4th; the second in July, when two rather small females were taken, one netted at dusk on the 13th of the month and the other at light next day; and one specimen of a third brood at light on October 18th, a male, which is quite as large as any of the first brood. *Boarmia repandata* was common and variable. Some nice examples of ab. *conversaria* were obtained, and also one almost pitch-black specimen, perhaps referable to ab. *nigricata*, which looked very conspicuous on a light beech trunk. *B. rhomboidaria.*—I obtained larvæ on *Cotoneaster. Hybernia defoliaria.* —Last autumn both my father, at Tintern, and I, here, obtained one or two specimens of this moth unlike any previously taken by us. They are a deep brown with strongly marked submarginal bands. Has this

form been taken after a cool or wet summer, or is it purely a hot, or perhaps, a dry season form? It would be interesting to hear if others like them were taken elsewhere last season. *Geometra papilionaria.*—I bred a few good specimens from larvæ found in May on small birch bushes. *Zonosoma porata* and *Z. punctaria* both produced two broods. *Z. linearia.*—I saw one here last season, a record for me on this side of the river. On the Monmouthshire side of the valley it is not uncommon. *Acidalia subsericeata.*—Netted at dusk. *Melanippe hastata.*—Not so scarce last year. *M. subtristata* is perhaps the commonest Geometrid of the district. Both broods swarmed. *M. unangulata* was not so common as usual. *M. fluctuata.*—I am unable to say how many broods there were last year, but can record a specimen at ivy-blossom on October 15th. *M. montanata* ab. *degenerata.*—I took an exceptionally nice example at light on May 29th, a very white specimen with the costal and inner-marginal blotches much reduced in size. *Melanthia rubiginata, M. ocellata* (two broods), *M. albicillata* and *M. procellata* were all to be obtained at dusk. *Coremia designata.*—In 1909 I netted a specimen with an extremely narrow band. Last year I took one in which the central fascia occupies fully one-third of the area of the forewings. There were at least two broods during the season. *Larentia multistrigaria.*—At light in March. *Asthena luteata.*—Netted at dusk. *A. candidata.*—Two broods as usual. *A. sylvata* was not uncommon at dusk and also to be found on tree-trunks. *A. blomeri.*—Several netted at dusk. *Eupisteria heparata.*—A few met with among alder bushes from June 7th to July 12th. *Minoa murinata.*—I was shown a specimen of the second brood captured at Tintern in August, and I believe I saw one or two about the same time over here, but did not succeed in netting them. *Emmelesia affinitata, E. alchemillata* and *E. albulata* were not very common and only one *E. decolorata* was seen, but *E. blandiata* was not scarce in its particular localities. *Cidaria psittacata.*—My father took one and saw another at ivy-blossom at Tintern; the first we have seen in the Wye Valley. *Cidaria immanata* was fairly common and I took a few nice specimens, including ab. *marmorata,* which is the least common form in the district. *C. truncata* is a much more abundant species. Wye Valley specimens are mostly dark and ab. *perfuscata* might almost be regarded as the local variety. We have also taken abs. *centum-notata* and *comma-notata* in the district, the latter being the least common. *C. prunata* was a fresh visitor in my garden, and I netted two in July. It is not uncommon at Tintern in my father's garden. Some other Geometrids met with were *C. picata* (on tree-trunks), *C. suffumata* (at dusk), *C. silaceata* (both broods), *C. fulvata* (males only), *C. pyraliata, Eucosmia undulata, Phibalapteryx tersata, Thera variata* (the second brood at ivy-blossom), *Cheimatobia boreata* (at light), *Lobophora hexapterata* (fairly common on poplar trunks), *L. viretata* (one at rest on an ivy-clad tree-trunk), *Chesias obliquaria* (bred), *Anaitis plagiata* (both broods abundant) and *Eubolia plumbaria* (unusually common about heath). *Hypsipetes sordidata* was as usual in abundance, and one or two rather nice specimens were obtained at dusk. *Eupithecia centaureata.*—One specimen was taken by my father at Tintern; the first and only specimen noticed by us in the Wye Valley. *E. satyrata.*—I netted on May 21st, what I believe to be a dark-greyish suffused aberration of this species. Other "pugs" met

with were *E. pulchellata*, *E. subfulvata*, *E. lariciata*, *E. castigata*, *E. abbreviata*, *E. debiliata*, *E. coronata* and *E. pumilata*. *Pyrausta purpuralis*.—Abundant about the heath and is frequently attracted by light into the house. *Herbula cespitalis*.—Not uncommon. *Ennychia octomaculata* was common at the beginning of June, and a second emergence occurred at the end of July when I netted two (July 26th and 31st) and saw others. *Pionea stramentalis*.—Plentiful near marshy places. *Botys pandalis*.—Not uncommon in May and June. *Scopula olivalis* and *S. prunalis*.—Common at dusk, especially the former. *Perinephele lancealis*.—Not common.

Greek Lepidoptera in April, 1911.

By P. A. and D. A. J. BUXTON.

The following notes on Lepidoptera in Greece from April 11th to 29th, 1911, may be of interest to some, as Greece is largely unexplored by British Entomologists. Many of the butterflies were much worn; possibly, a far greater number of species hibernate out there, or else they must have emerged very early in the year.

The weather was usually fine; we only had one or two wet days. On most days the sun was very hot up to mid-day, when it went in for good. We should have done much better at Delphi and Epidaurus, if the sun had been out in the afternoon as well, for as long as it was out insects were swarming. We unfortunately neglected Pierids (we did not know of *P. ergane*) when there was anything about that looked more interesting.

We have to thank Mr. L. D. Symington for very kindly identifying some of the butterflies, except the Lycaenids which Mr. G. L. Keynes was kind enough to name. Mr. A. F. Hemming confirmed some of the identifications which were not certain. The few moths were named at the South Kensington Museum.

On April 11th nothing was to be found on the Acropolis or on Lycabettus save *Pieris brassicae* and *P. rapae*; also *Sesia stellatarum* in the last mentioned locality. Some larvæ in the yellow flowers and buds of "Aspharka" (*Phlomis fruticosa*) produced in May an Alucitid Plume. Flowers in general were already out, many of them in seed. The Pierids were in rags, many of them at any rate.

On April 12th a drive to Eleusis produced nothing but one *Acidalia* (near *A. rusticata*), which was subsequently annihilated by a Greek housemaid, and two *Tineina*. The day was dull, and results so far were not very encouraging, chiefly owing to the weather. A drive in a motor all through Central Attica to Sunium on April 13th added several species to our list. Near Laurium we stopped to pick orchises (notably *Ophrys aranifera*). Here a specimen of *Anthocharis* (*Euchloë*) *belia* was netted in fresh condition. This insect flies fast and dodges over rough ground. It was abundant at Sunium and in the pink of condition. A chipped ♂ *Colias edusa* was netted near Laurium. On the little cape to the east of the Temple at Sunium *Pieris brassicae* was about. This species and *A. belia* kept apart from each other, though their respective domains were apparently similar, *A. belia* occupying the land on which the temple stands. One worn *Rumicia phlaeas* was taken, and a blue was seen! *A. belia* exhibited remarkably little sexual dimorphism. It rests frequently with its wings almost flat, correctly oriented, head up and directed away from the sun.

On April 14th, Good Friday, we called on the British School of Archæology, and decided that their garden was worth a second visit. *Celastrina argiolus*, *Gonepteryx rhamni* and *G. cleopatra* ♂ were seen. April 15th was wet, and was accordingly devoted to the Museums. April 16th Rear Admiral E. Bourke took a ♂ *A. belia*, several ♂ *P. brassicae*, and ♂ and ♀ *C. edusa* on Lycabettus. In the afternoon ♀ s of *P. brassicae* were appearing on the Acropolis among many ♂ s, *Pararge aegeria* was about in fresh condition, and one or two of the early brood of *Acontia lucida* were netted. The whole of the 17th was occupied in getting by sea to Itaea and driving up to Delphi.

The morning of the 18th was glorious, and the sun not too hot. At last we had reached ground that would interest any ornithologist or entomologist. If you go to Greece get more than one day at Delphi. The whole day was spent at and about the ruins, which cover a considerable area. *P. rapae* was very common, and was noted as being small. When we reached England we were glad to find among the small *P. rapae* three specimens of *P. ergane*. One or two *P. napi* ♂ s were taken, the underside very heavily marked on the hindwing. *P. brassicae* was, I believe, also present, though we brought none home. ♂ s of *C. edusa* were common but worn. *G. rhamni* ♂ s were also about, together with some *G. cleopatra*. The former was badly chipped, but *G. cleopatra* we failed to secure. *A. belia* was fresh. *Euchloë gruneri* ♂ s were netted. The yellow ground colour of this insect shows very distinctly when it flies. A yet more beautiful species, of which we only took one ♂, is *E. damone*. This insect has a very brilliant "orange tip," the rest of the wings being bright mustard-colour. One ♂ *Pontia daplidice* was also captured, the right forewing having a large apical asymmetrical injury. *Coenonympha pamphilus* was abundant, and variable. Several approached var. *lyllus*. The underside ocellus was frequently strongly accentuated on the forewing upperside. The hindwing margin was occasionally decorated with two or three dark interneural spots on the upperside. The underside of the hindwings showed some tendency to be pale grey and unicolorous. The specimens were frequently large. *Pararge megaera* was taken (♂ and ♀) chipped. The first blue netted was a ♀ *Celastrina argiolus* of an exceedingly brilliant blue colour, brighter in fact than any ♀ in Dr. Hodgson's cabinet at Cambridge. A large race of *Aricia astrarche* was abundant, flitting just above the daisies and grass while the sun shone. It disappeared instantly when the sun was not shining. Both sexes were taken; the orange on the upper side was frequently very conspicuous. One specimen of *Scolitantides baton* was taken—a worn male. The only *Rumicia phlaeas* was a ♀, with strong blue spotting in the hindwing, and the forewing upperside spots much reduced. *Aglais urticae* was noted and a ♀ *Erynnis altheae* taken. Among the moths, a specimen of *Arctia festiva* was brought us in an envelope, freshly emerged, the left hindwing imperfectly developed. *Acontia lucida* and *A. luctuosa* were netted flying in the sunshine. *Aspilates citraria* of both sexes were picked up and single specimens of *Lithostege farinata*, and *Gnophos obscurata* (?). *Gnophos variegata* came to light in the Hotel with several specimens of a *Larentia* which appeared to be *L. salicata*. At any rate the specimens, which are in poor condition, appear to resemble the series of this species in South Kensington rather than that of any other

species. We could, however, find no specimens whose data suggested the occurrence of an early brood in South Europe. We also took during this day several of the Alucitid which was bred from Lycabettus. These and other micros are now at South Kensington. *S. stellatarum* was flying in worn condition; almost always at flowers of a small species of *Mimulus* (?). Very few butterflies were seen during the afternoon as the sun was not shining. The altitude of Delphi is about 1,800 ft.

On April 19th we arose at 3.45 a.m. and went by boat to Corinth. We then drove to Old Corinth, across a hot and dusty plain. *P. brassicae* and *A. belia* were noted, the former very abundant among cruciferous plants about the ruins. A worn ♀ *Heliothis peltigera* was also taken. The ascent of the Acro-Corinthus produced a worn *Polygonia egea* towards the top, *Erynnis altheae* (one ♂), abundance of chipped *G. rhamni* (mostly ♂s), *Aricia astrarche*, *Acontia lucida* and immense numbers of *S. stellatarum*. These last haunted the flowers of the same plant on which they were noted at Delphi. On the very summit *Pyrameis atalanta* and *Pyrameis cardui* were flying—always circling round the actual top. It was most striking that these two species were very rarely seen except at the top of some eminence. Near the top a beautiful specimen of *Micra ostrina* was taken. Fortunately the sun shone most of the afternoon. *Larentia salicata* (?) was again taken. *Mecyna polygonalis*, an insect with an almost world-wide distribution, was several times disturbed. It flies away swiftly close to the ground, looking very orange, and darts into the herbage in ten or fifteen yards.

April 20th was spent in a visit to Mycenae, followed by a drive on through Argos to Nauplia. At Mycenae a single *Papilio* specimen escaped us; it was not *P. machaon*.

On April 21st we drove to the Temple of Aesculapius at Epidaurus. We secured a ♀ *Pararge maera* in the cultivated land near Nauplia. The hill country through which you pass for several hours is not interesting. One *Melitaea phoebe* ♂, and a very few *S. baton* ♂s, were all that was taken. The actual plain in which the Temple, Theatre, and other buildings lie was, however, more productive. A specimen of *Papilio podalirius* ab. *ornata* was secured, and several more were seen. Several *Euchloë gruneri* were noted, and we then committed the fatal mistake of adjourning for lunch. Instantly the sun was over-clouded, and we saw very little of his face for the rest of that day. However, we took specimens of *A. belia*, *G. rhamni* and *G. cleopatra* (♂s and ♀), *C. edusa*, *A. astrarche* and *S. baton* (♂s). We also added six new species to our list; *P. podalirius* has been already mentioned; *Polyommatus icarus* var. *icarinus* was taken, two males. (This seems to be the normal form in Greece. *Cf.* Tutt, *Brit. Butt.*, Vol. iv., p. 161.) The third species new to us was *Pieris krueperi*, of which one specimen was taken near the Tholos; the fourth was *Pararge maera*, of which both sexes were taken, the ♂s most abundantly. This insect flies equally in sunshine and when the sun is over-clouded, and frequented a purple vetch that grew among the steps of the Theatre; the fifth species was a very small male *Cupido osiris* (*sebrus*). The sixth species was *Euchloë cardamines* var. *citronea* ♂. Size, very large, orange tip increased on underside, a lemon yellow suffusion between base of wing and orange patch. *Aspilates citraria* ♂s, and *Anaitis plagiata*

were netted. We drove back to Nauplia in rain, the first rain we had had for a week.

During the morning of April 22nd a visit was paid to Tiryus. The only butterfly taken was a ♂ *P. icarus* var. *icarinus*. He "sawed" his hindwings up and down in the chip-box. What is the object or origin of this habit? Rain was falling most of the day.

April 23rd was wet. During the afternoon of April 24th we were taken in a motor past Phalerum and the Peiraeus to the coast of Salamis Bay. This coast is very barren. Practically the only vegetation is a small sea-pine. A pair of worn *Melitaea phoebe* were secured. This insect sails slowly about quite near the ground. Your net is apt to pass right over it, and then it is very ready to sprint off. The only other butterfly noted was *Glaucopsyche cyllarus* (one ♂). At rest this insect sat with his hindwings strongly separated towards the tornus and along the part which should be against the abdomen. The forewings were close together as is usual in Blues and butterflies generally. The hindmargin of the hindwings was also strongly crinkled.

On the 25th we drove to Mendéli and climbed Mount Pentelicus. Mendéli is at about 1,200 ft., the summit 3,640 ft. This was a most enjoyable day. The butterflies were not peculiarly interesting, as there was no sun after we reached Mendéli, and began to walk, but the flowers and the view from the mountain through rifts in the clouds, over Athens to Argolis, and over Euboea and some of the Cyclades, was delightful. During the drive to Mendéli we missed an insect which was either *Colias edusa* var. *helice*, or else *C. hyale*. Males of *G. cyllarus* occurred at various points up to the Monastery, often at heads of ragged robin, almost invariably near flowers of some sort. At Mendéli itself a ♂ *C. osiris* (*sebrus*) of normal size was taken. Just by the Monastery we secured a fresh *Callophrys rubi* with no white on the underside. The underside hindwings were covered with pollen all over their bases. Perhaps butterflies are a greater factor in pollen dispersion than is commonly supposed. As has probably been frequently observed this insect sits with the hindwing tails twisted so as to be at right angles to the plane of the folded wings. Two males of a small black Psychid were taken, one quite close to the summit. Not far from the top we found a small red toad with green warts. What did he or she propose to do with the tadpoles?

During the afternoon of April 26th we went to Old Phalerum, and walked southward along the coast to find some "craters" full of warm sea water, of which we had heard. This walk should be avoided by entomologists. The track is of deep sand. The land is largely cultivated. The craters are not to be found. We took tea on the only rising ground in the actual vicinity, a little knoll 25 feet high. Of course, it was a centre of attraction to *P. cardui*; one or two ♂ *S. baton* also met their death at this place. We found an exceedingly grotesque stick insect, probably the larva of *Empusa pauperata*; its Greek name is "Mellengutschk."

On visiting the garden of the "British School" next morning a ♀ *Saturnia pyri*—the largest European moth—was found asleep under a little fir bush. She was exceedingly tenacious of life in the cyanide-bottle. The following insects were captured, *P. icarus* (not var. *icarinus*), *P. brassicae*, *G. rhamni* (♂ and ♀), *G. cleopatra* (♀)

and *S. baton* (♀). A drive in the afternoon to the royal woods at Tatoi produced one *Cidaria* and one *Lithocolletis*!

On the 28th we attempted to scale Mount Hymettus. We committed the error of starting by the Monastery at the north end and consequently never reached 3,000 ft. This mountain is very barren, though it is not, as some assert, *entirely* composed of loose scree. Males of *G. cyllarus* were abundant in one spot below the Monastery (St. John); they also occurred on the mountain itself. For the first time we secured ♀s; one of them was small and had the left forewing teratologically malformed. With the first colony of *G. cyllarus* a few *C. rubi* were flying, though the only captured specimen was in rags, a ♀. *P. cardui* and *P. atalanta* were sailing round the summit of the shoulder. To-day we brought our list of different Orchids up to 14.

On the 29th our last day, we motored to Marathon, through some exceedingly pleasant country. On the coast by the battlefield we were baffled by a *Papilio*, certainly not *P. podalirius*, it appeared to be *P. machaon*. *A. citraria* was also netted a few miles from Marathon. On the return journey we took a pair of *Leptosia sinapis*. *A. belia* and *C. pamphilus* were also taken at various halts along the road. The list of Orchids had now reached 18, not bad for 19 days, and no member of the party a botanist!

Leptothorax tuberum, Fab., subsp. corticalis, Schenk, an Ant new to Britain.

By W. C. CRAWLEY, B.A., F.E.S.

In a wood at Buckhold Hill, near Pangbourne, Berks, on April 24th, 1904, I picked up an empty beech-nut, perforated with a small hole, probably by some insect. Inside the nut were a ♀, one ☿, and two half-grown larvæ of a species of *Leptothorax*. I took these ants to the Oxford Museum, but was unable to identify them. They were subsequently published as *L. tuberum*, Fab., race *nylanderi*, Först. This year, however, Mr. Donisthorpe and I examined the ants, and decided that they did not belong to this race. Dr. Forel has now named them as *L. tuberum*, Fab., subsp. *corticalis*, Schenk, var. with longer spines.

I append a translation of Schenk's original description of this subspecies, (in which Mr. Donisthorpe kindly assisted me), together with a translation of Forel's description of the ☿s of this and the other continental subspecies, which may be found in Britain, as well as that of the two already known as British.

A. *Myrmica corticalis*, N.S. (Schenk, *Jahr. des Vereins für Naturkunde in Herzog. Nassau*, viii., 1852, p. 100.)

☿. 1½-1⅔ l. Middle of body and waist brown-red; upperside of head and the whole abdomen, above and below, black-brown; the latter strongly shining. Mandibles, back of antennæ, underside of head, as well as legs, brown-red; club of antennæ red-brown; femora brownish, often also the nodes. The whole body furnished with scattered yellowish hairs. Antennæ 12-jointed, the first joint of flagellum thickened and lengthened, the following one very much shortened, the eighth a little longer, the ninth and tenth still more lengthened and thickened, the last joint thickest and as long as the three before; the four last form a club. The head is finely striated in lines; the thorax shows, under the lens, weak unequal striation in lines; the metathorax has two very short, broad, three-cornered, horizontal spines; on each side of

the metathorax, over and under the same, is a brown border. The nodes are longitudinally rugose; the abdomen short and roundish. The legs are bare. Known from the two preceding in the ♀ by the red club to the antennæ, the entirely black-brown abdomen, the bare legs, short spines, and 12-jointed antennæ.

♀ (deälated only known). Nearly 2 l. Black-brown; thorax and abdomen shining. Mandibles, antennæ and club, legs, brown-red, the femora brownish. Head long, striated; thorax with coarse striæ, the middle ones raised like a keel. Thorax broad and flat above; mesothorax and scutellum finely striated longitudinally. The metathorax has two short, nearly horizontal, spines. Nodes longitudinally rugose; abdomen broad, short, roundish.

This species is found rarely here under the bark of oak trees near the Gänsberg.

Forel, *Les Fourmis de la Suisse*, Zurich, 1874, pp. 84 and 85.

B. Workers.—Antennae 12-jointed. Legs without hairs. Clypeus not concave in the middle; it is generally furnished with a small median keel, and with two or more lateral keels (or striæ) . . . 2nd species, *Leptothorax tuberum*. A slight channel between the mesonotum and metanotum. Club of antennæ yellow, like the rest of the body; a black-brown transverse band on the first segment of the abdomen; the top of the head is often slightly brownish-yellow. Thorax finely rugose. Spines of metanotum broad at their base, about ⅓ as long as their basal width. L., 2·3mm.-3mm.

a. .. .. 1st race. *L. nylanderi*, Först.

(*In all the following races there is no channel between the mesonotum and metanotum; the back of the thorax is unbroken*).

Spines of metanotum very broad at their base, extremely short, hardly ⅓ as long as their basal width; their upperside is almost horizontal (forming an unbroken line with the back of the thorax), and their lowerside vertical. Antennæ entirely red-yellow, as well as the mandibles, tarsi, and joints of the legs. The rest brown-red; the top of the head and abdomen black-brown. Thorax more coarsely rugose than in the preceding. L., 2·5mm.-3·2mm.

b. .. .. 2nd race. *L. corticalis*, Schenk.

Spines of metanotum narrow, straight, about half as long as their basal width. Thorax more coarsely rugose than in *tuberum* i. sp., more finely than in *affinis*. Reddish. Head, abdomen except a yellowish spot at the base, femora and club of antennæ deep brown. L., 2·6mm.-3mm.

c. .. .. 3rd race. *L. nigriceps*, Mayr.

Spines of metanotum more than two-thirds as long as their basal width, slightly curved at the end, and extremely narrow, hardly wider at the base than at the point. Thorax coarsely rugose longitudinally. Yellow with a slight tinge of red. Middle of femora, forehead, vertex, and top of abdomen, except the front of the first segment, brownish; club of antennæ most often brownish, sometimes almost red-yellow. L., 2·6mm.-3·3mm.

d. .. .. 4th race. *L. affinis*, Mayr.

Spines of metanotum variable, generally half as long as their basal width, or a little longer. Thorax finely rugose. Yellow or reddish-yellow; club of antennæ, top of the head (especially the vertex), and middle of the top of the abdomen, brown, more or less deep. This race is very badly defined. Colonies that inhabit bark often merge into *L. affinis*, and those that live under stones, into *L. nigriceps* or *L. interruptus*. L., 2·4mm.-3mm.

e. .. .. 5th race. *L. tuberum*, i. sp., Fabr.

Spines of metanotum fairly narrow, upright, short, a third, or, at most, half as long as their basal width. Thorax finely rugose. Yellow: club of antennæ, front of head (never the vertex), and often an indistinct band, broken in the middle, on the first segment of the abdomen, blackish-brown. L., 2·2mm.-2·5mm.

f. .. .. 6th race. *L. interruptus*, Schenk.

Like the former, but larger. Band on first segment of abdomen clearly defined, unbroken, black-brown; front of head and club of antennæ reddish or brownish. Spines of metanotum half as long as their basal width, or a little longer. L., 2·5mm.-3·5mm.

g. .. .. 7th race. *L. unifasciatus*, Latr.

Entirely yellow; club of antennæ and front of head perhaps slightly

reddish. Thorax finely rugose. Spines of metanotum fairly broad at their base, two-thirds as long as their basal width, slightly curved at their extremities. The back of the thorax, which is unbroken like that of the six preceding races, distinguishes it from *L. nylanderi*. L., 2·5mm., about.

h. .. .. 8th race. *L. luteus*, n. st.

Some Coleoptera and an Ant, additions to the Isle of Wight Lists.

By J. TAYLOR.

The hot, dry weather of last summer made collecting trying work, and much less productive in some ways than usual here. Even in the spring, things were much too dry, and except during a few showery days in May, the only collecting that seemed to pay at all well was that done in the marshes. However, there are a few beetles not in the Isle of Wight list to record, as follows :—

**Acupalpus consputus*, Duft.—In brickfield, Sandown, May. **Amara continua*, Th.—In flood refuse, Sandown, November. **Deronectes depressus*, F., and **Berosus affinis*, Brul.—In a ditch, Sandown, October. **Gyrophaena nana*, Pk.—In sedge refuse, Alverstone. **Philonthus carbonarius*, Gyll.—Sandown. **P. varius*, Gyll. var. *bimaculatus*, Gr. —On pavement, Sandown. **Gabrius trossulus*, Nord. (as now understood).—Sandown. **G. stipes*, Sharp.—Whitefield Woods, August 1909, Donisthorpe; I have since taken this species in a heap of vegetable refuse at Sandown, April. **G. pennatus*, Sharp.—Sandown, common. Dr. Sharp kindly named my *Gabrii*. **Olophrum piceum*, Gyll. —In sedge refuse, Alverstone. **Homalium concinnum*, Marsh.—In dried currants, Sandown. **Megarthrus denticollis*, Beck.—In sedge refuse, Alverstone. **Anisotoma calcarata*, Er. ab. *nigrescens*, Fleischer. —A form new to Britain. Sweeping, Parkhurst Forest, August 21st 1910, Donisthorpe. **Choleva fuliginosa*, Er., and **C. morio*, F. (named by Dr. Nicholson).—In sedge refuse, Alverstone. **Scymnus testaceus*, Mots. var. *scutellaris*, Muls., and **Micropeplus margaritae*, Duv.—In haystack refuse, Newchurch. **Cryptophagus pilosus*, Gyll.— Sandown, February 7th. **C. punctipennis*, Bris.—Swept in Parkhurst Forest, Donisthorpe. **C. saginatus*, Stm.—In numbers in currants, Sandown. **Oxyomus porcatus*, F.—In stercore, Blackgang. **Necrobia rufipes*, De. G.—On cheese in a shop, Sandown. **Anobium paniceum*, L.—In henbane seeds in chemist's shop, Sandown. **Chrysomela hyperici*, Först.—On a basket, Sandown.

One specimen of *Philonthus corruscus*, Gr., was taken in stercore at Sandown in July (I believe this is only the second record for the island), and a few more *Cryptophagus subfumatus*, Kr., in currants.

In vol. xxii., 1910, p. 271 of this magazine I stated that a specimen of *Lesteva pubescens*, Mann., had been taken by Mr. Donisthorpe at Luccombe Chine; this turns out to be a fresh and pubescent *L. fontinalis*, Kies. Mr. Donisthorpe gave me the specimen, and, unfortunately, I did not send it to him for verification before recording it.

On August 21st, 1910, I took some of the ant **Leptothorax acervorum* F., from a fallen bough in Parkhurst Forest; this is an addition to the Isle of Wight ants. Mr. Donisthorpe, who was with me, and I were both under the impression that this species had been taken in the island before, hence the delay in recording it. Mr. Donisthorpe has seen the ants again recently, and has kindly looked at the coleoptera mentioned above.

Nonsense Names.

By GEORGE WHEELER, M.A., F.Z.S., F.E.S.

In the *Entomologist's Monthly Magazine* for February, is a paper by Mr. Meyrick on the nomenclature adopted for certain *Tortricina* by Mr. W. D. Kearfott, which must, I should imagine, be rather staggering to the rigid supporters of priority at all costs, and should open the eyes of all but the most hardened among them to the utter hopelessness of their position; unless they are prepared to provide an asylum in which systematic entomologists (and indeed systematic zoologists and botanists) are destined sooner or later to be immured, in consequence of the brain-fag which such nomenclature as Mr. Kearfott's (which their principles would bind them to accept) must necessarily superinduce. It is so rarely that I find myself in accord with the author of the paper on systematic questions, that it is with special pleasure that I offer humble thanks and congratulations on this occasion. His personal acquaintance with the author of these amazing barbarisms no doubt somewhat impedes his utterance, but I, who am not so hampered, do not hesitate to describe the list which he rejects as an insult to the common sense of scientists in every branch of zoology or botany, and an insult none the less to be resented (and rejected) because it is doubtless due only to thoughtlessness and not to contempt.

As some letters seem to be omitted as initials in forming such a series of names as *bana*, *dana*, *fana*, . . . *vana*, *wana*, and such like, the only possible method of remembering them seems to have been taken away; otherwise an opportunity might have been given to some entomological wag to exercise his talents (!) on "nonsense alphabets," in which each line should give a doggerel description of some peculiarity of the creature referred to, such as:—

"A is for *ana* with three bands of blue;
B is for *bana* which only has two;" etc.

I make no apology for this levity, for from this point of view it seems to me impossible to take the matter seriously. There are however other questions connected with it, which seem to call for graver comment, and here I feel the necessity of walking warily, since I am criticizing a great Society and an admirable Periodical; for these names were published under the ægis of the American Entomological Society in most instances, and in the rest under that of the *Canadian Entomologist*. It would be unfair to infer that either the one or the other approves of such a system of nomenclature, but would it not be possible for the Council of the Society and for the Editor of the Magazine alike, to avoid the appearance of countenancing such monstrosities by refusing point-blank to give them to the world? Speaking as a responsible member of the Editorial Staff of the *Ent. Record*, I would unhesitatingly insist on the rejection of such a paper, and if through any inadvertence such a one were read before the Entomological Society of London, I would, as Secretary, decline to include it in the Proceedings—and take the consequences, which however would, I am confident, be the almost unanimous approval of the Society.

But this appalling list having once been launched on the world, the method of its rejection becomes a question of moment. I have every personal sympathy with the courage of Mr. Meyrick in trying

to do this on his own initiative, but he knows, even better than I do, the forces against which he will have to contend—forces founded on a *principle*, which, however ludicrous it may appear both to him and to me, has behind it the weight and authority of many names which we all hold in high honour, and the owners of some of which are (I fear) prepared to go to any lengths in its support, even perhaps to the length of accepting Mr. Kearfott's "nonsense names." Never was there a stronger argument in favour of an International Council, such as was suggested lately by Mr. Turner at a meeting of the Entomological Society of London, to which all new names should be submitted, none of which names should be regarded as valid until they had been accepted by the Council. Surely this is a point which might well be threshed out by the coming International Congress of Entomology.

Another point on which I have every sympathy with Mr. Meyrick's position is his rejection of the illiterate names *islandana* and *elderana*, but in this I fear he will meet with insuperable opposition. Such mis-spellings as "*coridon*," "*maera*," "*aegeria*," etc., such grammatical anomolies as *Polyommatus amanda*, of which there are many scores, and, as a set off, such deplorable ignorances as *Hadena protea* (as if Proteus were an adjective—one of the horrors arising from not capitalizing specific names)—these, and others in similar categories, are hopeless of correction at the hands of individuals, but are well within the powers of such a Council, if it were composed of fairly well-educated men.

Two slight criticisms on Mr. Meyrick's paper I must make. The first is that much more excuse must be found before abandoning the three names of Busck which he rejects at the end of his paper. They are prior to Mr. Kearfott's nonsense alphabets, and cannot therefore be regarded as part of the series. Secondly, I would remind him that *n. sp.* refers not to a newly-created, but still to a newly-discovered, or newly-recognised *species*, and that it does *not* mean a new specific *name*, which would require to be written *n.n.sp.*, and that the use of these letters which he advocates and adopts is really quite incorrect as well as being out of accordance with general practice, which latter I quite hold with him should be disregarded when it is ungrammatical or otherwise illiterate.

(It will of course be understood, that the above expressions of opinion are my own, and do not in any way compromise any other member of the Editorial Staff.)

The first fortnight in July, 1911, at Digne.

By G. T. BETHUNE-BAKER, F.L.S., F.E.S.

Thirty-four hours seems a long time to take over the journey from here to Digne (*i.e.*, from door to door—home and hotel), and yet I travelled by the quickest trains possible, and had only two stoppages of any length of time, *viz.*, at Paris and at a small junction on the other side of Grenoble, in both of which places the time was well used in partaking of a substantial meal. At last, however, the "important" town of Digne—important it really was in old days—was reached, the Hotel Boyer-Mistre again opened its hospitable doors to the British stranger, and it was soon quite evident that the *entente cordiale* was no misnomer. It was 5 o'clock in the evening ere I reached the hotel, so

I was only able to quietly enjoy the main boulevard with its beautiful avenue of plane trees just beginning to well recover from a very severe pruning—to use no stronger phrase. I hoped for a good night's sleep, for that rarely fails me, but alas! the noise of the café below my bedroom window effectually prevented real rest, though the weariness of the flesh did manage to assert itself a little, but at midnight the café doors were banged to, and the great iron gates of the hotel were closed with a clash sufficiently loud to awake the seven sleepers. After this peace reigned for four blessed hours, but alas! at 4 a.m. the country carts came gaily along, with shouts, we will not say yells, from lungs that were evidently accustomed to open air addresses. Whether to men or beasts no matter—to me the effect was the same, but I suppose if one were there long enough, one would get accustomed to the regularity of this routine. As for me, I could rejoice that at least I obtained four hours of peaceful sleep each night. The next day I was up in fairly good time, and set out for the valley through which runs the Torrent des Eaux-Chaudes. Going the short cut across the town, hardly had I emerged on to the main road leading to my destination, than *Satyrus circe* settled provokingly a yard in front of me, but I had not mounted my net. There she sat sunning herself in lovely condition, whilst I prepared for her capture, and just as I was ready she raised herself with scarcely a motion of her wings and sailed over the wall with such grace, that the sight was quite worth the escape. Ere long I espied a vast bush of wild clematis on the roadside edge, with a smaller black butterfly on it, and this time, being prepared, I was more successful, for a beautiful *Limenitis camilla* was secured. Passing the Dourbes road on the left, I came to a wide expanse of stones with small patches of grass, rushes, and flowers interspersed (the bed of the stream that has been evidently of larger dimensions than now). The roadside here is bordered with elm trees and some ash trees. Here I spent possibly an hour. *Colias edusa* was not uncommon, with one or two var. *helice*. *Melitaea didyma* was plentiful, all males, but very brilliant they looked flying in the unclouded sun. *Lycaenidae* were not plentiful, *Plebeius argus* (*aegon*) being the commonest; one or two very worn *Polyommatus icarus* were also seen, and a few *Strymon* (*Klugia*) *spini* in beautiful condition were regaling themselves on some rather stunted thyme beneath the roadside trees, and were secured. At this spot *Nordmannia ilicis* ab. *cerri* did not occur at all, though further up the valley it became a little later on so plentiful, that I got tired of netting it. Proceeding up the valley *Agriades coridon* was taken singly here and there, whilst *Satyrus actaea* var. *cordula*, became abundant and was magnificently black and fresh. It is curious, as well as interesting, to find that the same species has different habits in different localities. In Switzerland my experience of *S. cordula* is that it has a very uncertain and deceptive flight, is by no means an easy species to catch, and has a wonderful knack of doubling back downwards or upwards, generally the former, and so avoiding capture. At Digne it had none of these methods, and was an insect very easily taken. Another very common and pretty little species found everywhere was *Coenonympha dorus*; it was another species one wearied of after the first day or two, and now having got all that I took set, I find I was not careful enough in selecting them, and could do with a better series, especially of the

females, of which I only took two or three. At last I came to the modest "Establissement Thermal," not that it is far away, only the first walk in a new district has so many attractions, that it often takes two or three hours to do what ordinarily would take under one. Here *S. cordula* was very abundant and the first *Erynnis lavaterœ* fell a captive to me, to be followed by a *Lycaena arion* somewhat *passé*. This was a male of the form ab. *unicolor*, without any spots on the upper surface, as were all the males I took. The species was however rapidly going over. The only other Lycœnid I saw this first day was *Cupido minimus*, also in the last stages of decay. I was now anxious to push on, having seen *Papilio alexanor*, as I imagined, down below me once or twice, and soon I came to a likely ground, where *Nordmannia ilicis* ab. *cerri*, with beautifully bright, and large orange areas, disported themselves over abundant clusters of thyme. Argynnids also occupied one's legs and arms, *Brenthis daphne* being fairly common, and in its early emergence, *Argynnis adippe* also frequently displaced other less violent species on the thistle heads, and an occasional specimen of var. *cleodoxa* was also captured. Soon a *Papilio* was sighted on another thistle at the other end of the ground entailing a rapid run, and a quick stroke, just as she was lifting herself off the flowers, secured my first *P. alexanor*, a beautiful female. After this others came along, and I thus was able to take some three or four as my first day's capture. Ere long, however, another welcome sight greeted my eyes, for surely that brilliant coloured strong flighted thing must be *Gonepteryx cleopatra*. Another sharp run brought me within good view, but alas! before I got within striking distance he scented danger, and sailed far away up the side of the hill. Directly after this a fine male *G. rhamni* gave me a chance, which I took, and ere long another *G. cleopatra*—if it was not the same—came along, and this time I was successful. But what is this little Argynnid? *Brenthis pales* it cannot be at this low level. As soon, however, as I had boxed it, I saw at once that I had my first *B. dia*. Then *Parnassius apollo* put in an appearance, very large and fine, the males very white but with large black patches, and the females darker than usual. It was well after lunch time, and I therefore crossed the stream for the sake of the shade of the trees, for by this hour I had gone far up the valley, and was by no means sorry of an hour's rest. I had not been seated long before a *Leptosia* (*Leucophasia*) dodged about around me, and impelled me to secure what turned out to be *L. sinapis* var. *diniensis*; several others came by and shared a like fate, for they were fine fresh specimens. The ground further up the valley did not look very promising, and it was getting towards 8 p.m., so I thought it wise to retrace my steps, but added nothing fresh to my list except a rather worn *Aporia crataegi*.

The next day I took my way for the hill La Collette, but instead of going by the usual track (as I found it to be later on) I took—by mistake—a much harder climb, which brought me direct on to the highest point of the hill—a small level area surrounded on three sides by precipitous rocks around which *Papilio* and *Parnassius* loved to disport themselves just out of reach. But to return to the roadside. The cemetery proved no good, the only insects there being *Adopaea lineola*, *Augiades sylvanus* and a few *Plebeius argus*. As I came near the turning, where we leave the main road, a fine *Satyrus circe* flew along the top of the wall that was covered with the small wild clematis,

and provokingly dipped whenever I came up to it, but it led me into the field on my way to La Collete, and I was able to catch several specimens all beautifully fresh. Here, also, two more fine ♂ *G. cleopatra*, with one nice ♀, fell to my net. As I made my way up the old bed of a stream, *N. ilicis* var. *cerri* was again *en evidence*, and *P. escheri* was not uncommon with occasional specimens of *A. coridon*, and *Limenitis camilla* also sailed gracefully over various flowers and seemed especially fond of the little clematis that grows on everything. The lavender, however, that covers so plentifully the sides of this hill, attracted the *Lycaenidae* greatly. One large pale blue suddenly descended on to a head of it near me; a glance was enough, a rush even though at an angle nearer 70° than 45°, and a stroke, and my first ♂ *Polyommatus meleager* was safely transferred to a box, being the first specimen of this insect I had seen on the wing. Then *Polyommatus hylas* came within range and was also secured, whilst later on the beautiful blue female of *P. meleager* was likewise captured. Ascending still, *Satyrus cordula* was abundant everywhere, but the gradient became so steep, having gone the wrong way, that much collecting was impossible, though one or two unusually large *P. apollo* could not be resisted. At last, however, I emerged on to the top plateau already referred to, and after a minute's breathing space, a white butterfly, new to me in this locality, flew by, and I discovered that I had *Anthocharis belia* var. *ausonia* in my net, whilst a second one soon followed it. Then *P. machaon* hurtled wildly by, but was stopped in his onward course by a timely stroke. A beautiful specimen of *P. podalirius* had, however, been engaging my attention as he hovered out of reach over the precipice. I was hoping it might prove to be the southern var. *feisthamelii*. At last it came over the plateau and I succeeded in my quest. It turned out to be about midway between the parent form and its variety, it being decidedly whiter than more northern specimens, but the anal spot was not quite red. Then a *P. alexanor* was captured, and ere I left, a second "transit ad var. *feisthamelii*" shared a like fate. A little below this, on a later date, a single *Laeosopis roboris* fell to my lot, a species for which I was specially on the look out, but it was the only one, and is evidently rare around Digne. On another day I came across a meadow-like hollow just below the ridge of the Collette *en route* for the Dourbes valley, absolutely full of flowers, lavender, valerian, clematis, thistles and many others—a wonderful sight. The colour of the flowers, the rich green of the grass and the butterflies, the rich dark black (as it looked) of *S. cordula* in abundance, with the lovely grey undersides of the females of the same species, *P. apollo* and *L. sibylla* determined not to be caught, various blues already named; every head of flowers was occupied by something. *Melitaea didyma* was in profusion with several females, one or two being very black. It was a sight not easily forgotten. Here also I took my first *M. phoebe* for this locality, a fine red specimen, a single *Colias hyale*, absolutely fresh also fell a victim to my attentions, as well as a fine female *A. aglaia*. *Loweia alciphron* var. *gordius* also spread its wings to the sun attracted by the sweet-scented lavender and found a temporary home in one of my boxes. This species was rare (probably over) for I only took three during my visit. On the other side of the hill *M. athalia* was not rare, the females being large, fine specimens,

whilst the males were dark and handsome, the tawny colour being very bright. I took two or three males, however, in which the black markings were much reduced, thus giving them quite a peculiar appearance. Lower down I was fortunate enough to secure two more beautifully blue females of *P. meleager* flying over the white flowers of one of the saxifrages. I was soon almost in the side valley leading to the main road to the Dourbes, when an Arctiid I did not recognise flew past, soon followed by a second, the latter of which I caught, and found I had boxed *Coscinia striata*, and a very nice white female she proved to be. Another day, further on in the Dourbes valley, I found this species very common, they were flying about (both sexes) in the hot sun over a grassy, if somewhat dried grass, land, that was much interspersed with a small rush, and I took a nice little series, among them being a magnificent specimen of the form *melanoptera*, Brahm., in which the black of the nervures was much wider than usual, making the primaries also very dark. *Anthrocera* (*Zygaena*) *lonicerae* was not uncommon, as was also *A. achilleae*, and among them was one in which all the basal and median spots were confluent. Returning along the main road, nothing of special interest was taken until I came nearly to its junction with the Eaux-Chaudes road, where, sunning itself on the sunburnt rocks on the right, I suddenly saw a lovely specimen of *Polygonia* (*Grapta*) *egea*; an equally sudden sweep secured it, and it was scarcely in a box before it was followed by a second, which was likewise captured; scarcely, however, was this in my pocket before a third came along and shared a like fate. I was therefore well pleased with the result of that day's work.

(*To be concluded.*)

Catops montivagus, Heer, a British Insect.

By H. St. J. K. DONISTHORPE, F.Z.S., F.E.S.

Oblongo-ovatus, niger; antennis basi, tibiis tarsisque rufo-testaceis, pronoto subtransverso, basi apiceque latitudine sub-aequali, angulis posticis rectis, acutis; elytris obsoletissime striatis; antennis abrupte clavatis, articulo ultimo penultimo vix longiore. Long. 1¾ lin.

Very similar to *C. tristis*; chiefly to be distinguished by its thorax being a little longer, but narrower. The first five joints of the antennæ are rufo-testaceous, the eighth the smallest, much shorter and narrower than those that follow, the last shortly ovate, scarcely longer than the preceeding; the thorax much narrower than the elytra, a little broader than long, with the sides slightly rounded, behind subsinuate, very densely punctulated, clothed with a dense yellow pubescence; elytra oblong-ovate, very closely punctate, but evidently impressed with a sutural stria, thighs pitchy black. Very rare in the Alps. (Heer) *Faun. Col. Helv.*, i., 381.

I took an insect at Nethy Bridge on June 27th last, under a dead squirrel, which is undoubtedly Heer's species, and Captain Deville has sent me a number of specimens from Soissons, and one he took at Mont-Dore, which are evidently the same.

My specimen is a male with tuberculate anterior femora, and comes next to *tristis* and *coracina*, but does not agree with either. It is darker than *tristis* in colour, and has a markedly longer and narrower thorax, which is bisinuate at the base, and the elytra are also longer.

In the European catalogue *montivagus* is treated as a synonym of *tristis*, which is of course incorrect. Murray, in his monograph on the genus Catops, considered it to be a var. of *tristis* (although he also called *longulus* and *grandicollis* vars. of the same, which are now regarded as good species), it may be as well to introduce it into our list as a var. at present. Mr. Bishop and I took a number of species of *Catops* under this squirrel and he is now looking through his specimens to see if there are more *C. montivagus*.

SCIENTIFIC NOTES AND OBSERVATIONS.

STRAY NOTES FROM JAVA.—The following notes may be of interest to those studying mimicry:—(1) *Drongo* and *Atlas Moth*, April 30th, 1911, at Buitenzorg.—When in the gardens one morning one of the gardeners brought me a live Atlas moth, which was quite a foot in expanse. I persuaded him to let it go, as I did not want it, and it went off with a slow flapping flight for a few yards, when there was a rush of wings directly behind me, and I saw it being carried off by a drongo. The bird carried the moth in its claws to a high tree and tore off portions of the wings preparatory to eating it; but this took such a time that I did not stay to witness the end of the tragedy. (2) *Drongo and Butterfly*, May 26th, 1911, at Tjibodas.—When in the thick primeval forest on the way to the Tjiborewa waterfall I was stalking a *Zeuxidia* sp.?, a large butterfly with a pale blue subapical band on the forewing. It flew off the underside of the leaf on which it was settled and was immediately darted at by a drongo, which seemed to come from nowhere! The bird did not capture it, and did not repeat the attack. In this thick forest the butterfly was almost invisible, except for the blue bar, which is bluish white in the female. The wings of the fresh male are of a deep indigo blue, a lovely colour, which, like that of the *Discophora celinde*, will probably fade; the female is deep brown, with large bluish eye-like spots on the hindwings; these are smaller and more obscure in the male. Some would consider this blue band a directing mark. It always settles on the underside of a leaf, about five feet from the ground, but frequently high up out of reach and always with widely expanded wings. (3) *Clerome arcesilaus*. This obscure, uniformly-coloured, brownish-yellow butterfly was very common in this forest, it is in fact, in every thick forest; it settles on the path, and when disturbed flutters into the jungle. It is difficult to see in such deep shade, but is easy to capture, as it has a very weak flight. Out of the numbers I have seen, none had pieces taken out of their wings, though many were very ragged. (4) *Prioneris* resembling *Delias*, May 24th, 1911, Poentjah Pass, West Java.—Captured a male *Prioneris philonome*, Bsd., which closely resembles a *Delias* by its yellow hindwing and red costa; but the flight is quite different, being less floating and more rapid and darting. It is rare in Java, but *D. belisama*, which would be considered its model is very abundant. This is a similar case to *P. sita* and *D. eucharis* in South India and Ceylon. (5) *Melanitis ismene*, October 27th, 1911, Padang (on the equator), Sumatra.—I found one specimen, which was intermediate between the wet and dry season form; a few days afterwards at Buitenzorg the wet forms were common but very worn, and the

very few dry forms about were in first rate condition. At this place there are two hundred and nineteen days of the year on which more or less rain falls. In North-east Sumatra, as pointed out many years ago by Dr. Martin, the wet and dry forms occur indiscriminately all the year round, though rain falls nearly every week in the year. In Ceylon they also occur thus, but to a much less marked extent, there is a more gradual substitution of one form by the other; this is also the case in Bombay. In India generally the changes are more abrupt, and in Mauritius this is even more so, as I have elsewhere indicated. The seasonal forms of this and many other tropical butterflies have hitherto been considered as some form of cryptic defence against the attacks of birds, reptiles, and predatory insects; but inasmuch as the forms of this butterfly and many others I could mention occur thus indiscriminately without detriment to the species, if one may judge by their numbers, it would seem that this explanation, though perhaps partly true, is inadequate, and the whole subject of these seasonal changes may have eventually to be written from another standpoint. (6) *Papilio memnon*, Resting habit of.—This butterfly rests on the end of a leaf or spray with expanded wings at about ten feet from the ground, it is quite conspicuous. *P. polytes* and *P. tamerlana* (a local race of *P. paris*) do the same, but in these latter the forewings droop sufficiently to cover the conspicuous eye-like spots on the hindwings. (7) *Telicada nyseus*, Resting habit of.—This settles for the night three or four together head downwards and concentrically on the top of a seeded dandelion or similar plant, the mottled black and white underside of the hindwings with their black hind border make a very close resemblance to a seeding flower-head.—Lt. Col. N. Manders, R.A.M.C., F.E.S., London. *February 1st*, 1912.

Hydrœcia crinanensis, Burrows, in the Tutt collection.—Amongst the Hydrœcias, which I purchased at the sale of the first part of the "Tutt" Collection, and consisting of a portion only of his series, were 31 labelled *Hydroecia lucens*, Fr., and 38 labelled *H. paludis*, Tutt. The Rev. C. R. N. Burrows has been kind enough to examine the genitalia of all the *H. lucens*, and tells me that they consist of 18 *H. crinanensis*, Burrows, and 13 *H. lucens*, Fr. Six of the *H. crinanensis* (four ♂ s, two ♀ s) are from Wicklow, and were taken in 1890, earlier than any recorded up to the present, though no doubt still earlier specimens will be discovered when some of the older collections are systematically examined. Eleven (ten ♂ s, one ♀) are labelled "Ben Beulah, 1893." Ben Beulah, or Bheula, is on the south side of Loch Fyne, at the head of Loch Eck, in Argyleshire, and not very far from the Crinan Canal. The remaining specimen, a male, is labelled "Morpeth, 1895," and is, I believe, the oldest recorded English specimen. In no case was the name of the captor given. Morpeth, in Northumberland, and Wicklow are both new localities for this species, and the former is especially interesting as it is a good deal nearer the east coast of Great Britain than any other known hitherto. Of the specimens labelled *H. paludis*, Tutt, 33 are from the South of England, and have not been examined, but five specimens from Sligo (one ♂ var. *paludis-flavo*, one ♀ var. *grisea-flavo*, one ♂ and two ♀ s var. *intermedia-flavo*), caught between 1880 and 1885, have all been pronounced by Mr. Burrows to be *H. lucens*, Fr. A very pale male is probably one of those referred to in the

British Noctuae and their Varieties, vol. i., p. 68, where the following sentence occurs in a discussion of the species *H. paludis*. "The palest I have ever seen were captured by Mr. Percy Russ at Sligo, in Ireland, but others captured by Mr. Ovenden and myself at Strood, Mr. Coverdale at Shoeburyness, and by myself at Deal, are but little darker than the Irish specimens." These pale Sligo forms are probably all referable to *H. lucens*, Fr. That Tutt himself, the acknowledged authority on this genus, should have had in his own cabinet *H. lucens*, Fr., and *H. crinanensis*, Burrows, mixed together for many years under the name of *H. lucens*, and *H. lucens* and *H. paludis* under that of *H. paludis*, shows how impossible it is to distinguish between these three species by a superficial examination.—E. A. Cockayne, F.E.S., 16, Cambridge Square, W.

[I find that the "Ben Beulah" specimens of *H. crinanensis* were captured by Tutt himself, on *low ground* near Ben Bheulah, shown to him by Dr. Chapman. No doubt this species was the one captured in previous years in this locality by Dr. Chapman.—E.A.C.]

NOTES ON COLLECTING, Etc.

Phigalia pedaria in December.—I have an earlier record for *Phigalia pedaria* than that recorded by Mr. Tonge (p. 25), as I took a freshly emerged male on a fence bordering Highgate Woods on December 17th last. It was slightly crippled. *Cheimatobia brumata* was still abundant and many quite freshly emerged in the woods in the same afternoon.—Russell E. James, "Brockenhurst," Bloomfield Road, Highgate. *February 9th*, 1912.

Correction.—In the *Ent. Record* for January, 1912, p. 12, line 13, read ♀ for ♂. I may add that lines 36 and 37 on p. 11 are not sufficiently clearly expressed. The Belgrade Forest ♀ s of *M. didyma*, are much suffused as a rule in the first generation. Those of the second brood are of a more orange-brown ground colour. As regards *C. erate*, it may be said in criticism of my suggestion as to the possible causes of its presence on the Bosphorus, that butterflies do not move when North and North-East winds blow. Very true, but what about sudden changes of wind which are one of the features of the Euxine? I have seen *C. edusa* flying over the Bosphorous in warm weather more than once. Given a sudden change of wind, especially of a violent nature, and an insect may be carried a long distance by a wind in which it would not ordinarily fly.—Philip P. Graves, F.E.S., Club de Constantinople, Constantinople. *February 24th*, 1912.

CURRENT NOTES AND SHORT NOTICES.

The Rev. G. M. Smith and Mr. C. Granville Clutterbuck, F.E.S., as Members of the Museum Committee, are engaged in arranging a collection of the Gloucestershire Lepidoptera for the Gloucester Museum. Collectors willing to supply specimens are invited to communicate with the latter gentleman at "Heathside," Heathville Road, Gloucester.

The National Trust for Places of Historic Interest or Natural Beauty, are at the present time making an appeal to preserve to the nation some sixty acres of the North Downs, *viz.*, Colley Hill near

Reigate, and to assist them a shilling fund has been arranged for which Mr. T. H. Grosvenor, F.E.S., 8, Gloucester Road, Red Hill, is acting as Hon. Secretary. It will be remembered that in the past entomologists have had much reason to thank the Trust for the benefits they have conferred on us by preserving in perpetuity such localities as Burwell Fen, 30 acres, Wicken Fen, 4 acres, Hindhead, 1,412 acres, East Sheen Common, 30 acres, Leigh Woods, Bristol, 80 acres, in addition to about 18 other properties in the most interesting parts of Great Britain. Colley Hill is annually visited by entomologists, who visit it for the many local species of Lepidoptera that occur there. There have been some very generous donations, and collections were made at recent meetings of the Entomological and South London Entomological Societies with very gratifying results. The need is great, and there only remain a few weeks to raise a considerable sum.

In No. 18 of the *Bull. Soc. ent. de France*, recently received, there is a series of biological notes on the larva of *Myelois cribrella* by M. Etienne Raband. He describes in interesting detail the feeding of the larvæ in the heads of flowers of thistles, etc., their migration from head to head, and their final penetration into the stem for pupation with the construction of an operculum backed by a "cork" of débris and excrement. M. Raband states that he has actually seen the larva migrate from capitulum to capitulum, and again finally from capitulum to stem for pupation.

"To the making of books there is no end" is a statement of fact with which the man in the street is only too familiar. The lepidopterist is inclined to parody this phrase and say "To the naming of varieties there is no end." We scarcely open a magazine, a bulletin, a transactions, etc., without immediately meeting with a new-named form of some well known species. In a separatum entitled *Lepidoptera of the Zoological Museum of the University of Naples* just received from Conte Emilo Turati, the author lists the forms of *Parnassius apollo* to the amazing number of 84 named forms, of which 53 are local races or subspecies and 31 are aberrations. In a supplementary note some 11 more racial and aberrational forms are mentioned, so that of this one well-known species we have nearly one hundred named forms. Verily nomenclature is proving its suggested reputation to the hilt. Count Turati has gone carefully through the Naples collection of Lepidoptera, described all the distinctive forms especially of the Rhopalocera, and added numerous valuable critical notes.

The entomological work of the New York Agricultural Experimental Station at Geneva is always highly commendable for its thoroughness. We have received a copy of a *Preliminary Report of Grape Insects*, consisting of about 100 pages with 15 photographic plates and numerous diagrams and tables, containing an account of five insect pests from the depredations of which the grape area in the Chautauqua belt had gradually declined in productiveness. The grape flea-beetle (*Haltica chalybea*), the rose-chafer (*Macrodactylus subspinosus*), and the grape-root worm (*Fidia viticida*), are Coleoptera, the grape-blossom midge (*Contarinia johnsoni*) is a Dipteron, and the grape leaf-hopper (*Typhlocyba comes*), is a Hemipteron. These are each dealt with from an economic and historical standpoint, the areas of their distribution and references to the literature concerning them are given. The various plants they attack, the character and extent of the injuries

they inflict, descriptions of the insects in all their stages, their habits of life, the times of their appearance, an account of the experiments made to destroy by spraying, cultivation, etc., and the various control measures likely to be successful, are all discussed at length.

In a notice of the books just recently published we read that Messrs. Longmans have brought out a book entitled *Butterfly Hunting in Many Lands*, by Dr. George Longstaff. The book is illustrated by plates in colour. Dr. Longstaff is, we know, a great traveller and wielder of the net, and his book therefore should be of much interest to entomologists, as well as entertaining to the general reader.—A. S.

Among the contents of the *Berliner Entomologische Zeitschrift* for the past year, we note the following articles which may be of more or less general interest. (1) "The Entomological Results of a journey through Upper Italy and the South Tyrol in 1910," giving notes on the various captures in the orders Neuroptera, Odonata, Orthoptera, Lepidoptera, Diptera, Hymenoptera and Rhynchota from the middle of May to the beginning of August, with plates, on one of which is a figure of a teratological specimen of *Blaps mucronata* with a bifid left antenna. The paper is by Herr Willy Ramme. (2) "A Second Contribution to the Lepidopterous Fauna of the North with critical remarks," by Herr H. Stichel. One of the most useful portions of this lengthy article is a bibliographical list of no less than 131 books or articles in which the same northern areas are dealt with more or less at length, and which he has consulted. As to new names, the cry is "Still they come," *e.g.*, *Cerura bifida saltensis* forma *poecilia*, which we presume means *Cerura bifida* subsp. *saltensis* ab. *poecilia*. There is one plate of newly named forms. (3) "A Contribution to the Orthopterous Fauna of the Mark Brandenburg," (The Berlin area), by Herr Willy Ramme, with one plate.

The *Naturalist* for December contains the reproduction of a capital photograph of three specimens of *Polia chi* resting in proximity to one another on a wall. This picture gives one the idea that this species is not protectively coloured for resting on a wall, a fact which is in accord with the experience of many of our personal friends. We have always been told that sitting on a wall it is a most conspicuous insect. One of the moths is the dark form *olivacea*, but it appears to be almost equally distinct as do the other two. Is this the universal experience of observers?

In the *Entomologist* for December, Mr. H. Donisthorpe, F.Z.S., F.E.S., contributes a "Revised list of the British Ants."

In the November number of the *Entomological News* Dr. Philip P. Calvert of Philadelphia continues the account of his investigation of the inhabitants of the water and débris which collects between the bases of the leaves of the epiphytic *Bromeliaceae* in the neighbourhood of Juan Viñas, Costa Rica. He was particularly investigating the habits of the larva of one of the Odonata, *Mecistogaster modestus*, Selys, which he knew lived in such situations. From the most interesting account given in his paper we extract the following paragraph giving the list of inhabitants of one clump only of the Bromeliads. He writes, "This clump of Bromeliads was tenanted, in addition to the Odonate larvæ, by a young scorpion (*Centrurus margaritatus*) two inches long, which had just moulted, the exuviæ also found; two species of Phalangids (*Metergimus signatus* and *Cynorti* sp?); a

Pseudoscorpion (*Chelanops* sp ?); Coleoptera, both adults (*Metamasius dimidiatipennis*, *Alegoria dilatata*, *Cryptobium* sp ?, an Endomychid genus, new, near *Trochoideus*, *Cercyon* or *Phaenonotum* sp ?, and *Phaenonotum tarsale*) and larvæ (Elaterids, probably of the genus *Semiotus* and others allied to what is considered the larvæ of *Dolopius*, a Lampyrid of an unknown genus, but apparently related to *Photuris*, a Sphæridid, possibly *Phaenonotum tarsale*); a Dipterous larva (Stratiomyiid) with a circle of setæ at its hind end; two Heteroptera, the subglobular shiny *Chlaerocoris dissimilis* and a flat nymph of (probably) *Belminus rugulosus*: a Hepialid caterpillar; a small earwig ("too immature to be determinable, probably it is a *Labia*, possibly *L. annulata*," Burr); ants of an undescribed species of *Apterostigma*. The weevil, *Metamasius dimidiatipennis*, bore many Acari (a species of *Uropoda*) on its legs, and another large Acarine was present between the leaves. Finally in the mud between some of the leaves was a fair sized earthworm (an immature *Andiodrilus biolleyi*)." The author continues: "The list here given . . . . does not include by any means all the *bromeliadicoli* which we met with in Costa Rica, but is interesting as giving a glimpse of the organic environment of the special subject of the paper" the "*Habits of the Plant-dwelling Larva of Mecistogaster modestus.*"

We have received a long paper published in the *Proceedings of the Zoological Society of London*, for September, 1911, by Lieut.-Col. Manders, R.A.M.C., F.Z.S., F.E.S., entitled "An Investigation into the Validity of Müllerian and other forms of Mimicry with special reference to the Islands of Bourbon, Mauritius, and Ceylon." The author takes each island in turn and enumerates the reptiles and birds which are known to attack insects; he has collected as many data of observations as were possible and in addition made experiments as opportunity offered. In conclusion, he shows that neither the Müllerian nor the Batesian forms of mimicry are illustrated in the insect economy of these islands, as in Bourbon and Mauritius there are no butterfly-eating birds or reptiles, while in Ceylon the butterfly-eating reptiles are impartial feeders and no bird known to eat butterflies discriminates between one species and another.

In the *Ent. Mo. Mag.* for January, the Rev. A. E. Eaton describes a species of Diptera new to science, *Telmatoscopus rothschildii*, of which the Hon. N. C. Rothschild has taken specimens off a tree trunk near the Serpentine in Hyde Park.

In the same number Mr. J. E. Collin edits a new series of notes on species of Diptera new to Britain, by the late G. H. Verrall, F.E.S. They are *Sciara longiventris*, from Sutton Park; *Leia terminalis*, from Herefordshire; *Boletina basalis*, from Ivybridge, Bettws-y-Coed, etc.; *Platyura nigricauda*, from Llangollen and Bewdley; *P. modesta*, from Dorset; *P. nigriceps*, *P. humeralis*, from Nairn and St. Albans; *Scatopse talpae*, from Reigate, Cambridgeshire and Suffolk (this species is new to science); *S. coxendix*, from Lewes, Chippenham, Lyndhurst, etc. (new to science); *Cricotopus pulchripes*, from Snowdon (new to science); *Ceratopogon pallidus*, from Handcross, Sussex; *C. nubeculosus*, from Worms Hd., Aldeburgh, Wareham, etc.; *C. forcipatus*, from Penzance; *C. versicolor*, from Newmarket; *C. nobilis*, from Studland, Dorset; *Dixa nigra*, from Nairn; *Limnobia decemmaculata*, from Tarrington; *Psiloconopa pusilla*, from S. Herefordshire; *Rhamphomyia*

culicina, from Nairn and Porthcawl; *Pachymeria erberi*, from Butley, Suffolk; *Hilara aëronetha*, from Leith Hill and Tunbridge Wells; *H. lugubris*, from Stanford, Norfolk; and *H. diversipes*, from Nairn.

The *Entomologische Mitteilungen* is the new monthly periodical which has taken the place of the bimonthly *Deutsche Entomologische National Bibliothek* as the organ of the German Entomological Museum, Berlin-Duhlem. The get-up and general contents of the first number are a great advance upon its predecessor. It is illustrated by plates and diagrams, and is printed on good paper. Among the contents are a "Sketch of the history of the German Entomological Museum," by its Curator Herr W. Horn, "Entomological Nomenclature," by Herr S. Schenkling, and a "Bibliographical Study of Panzer's *Fauna Insectorum Germanica*," by Herr Roeschke.

Yngve Sjöstedt's Zoologische Kilimandjaro-Meru Expedition 1905-6.

(Abtheilungen 1-22. vols. I-III. 4to Stockholm 1910.)

By MALCOLM BURR, D.Sc., F.Z.S., F.L.S., F.E.S., F.G.S.

Professor Sjöstedt left Stockholm on April 20th, 1905, and landed again on Swedish soil on August 2nd, 1906, bringing back with him three and a half tons of baggage which contained his zoological collections, consisting of over 59,000 specimens, representing upwards of 4,300 species of animals; of these, over 1,400 were new to science.

The working out of this extensive material was delegated to a number of leading specialists, the results of whose studies are published in three sumptuous quarto tomes, consisting altogether of 2328 pages, illustrated by 87 plates.

The country which was thus scientifically explored consists of the plateaus of the Kilimandjaro-Meru district. The former is the loftiest mountain in Africa, attaining an altitude of 6,010 metres or 19,718 ft., and its neighbour, Meru, reaches 4,630 metres or 13,124 ft. Kilimandjaro is an eruptive mass, consisting mainly of granite, and gneiss of Tertiary Age. So lofty a mountain, situated on the Equator, naturally presents a great variety of conditions: Sjöstedt enumerates the zones as follows:—

First, the Steppes, between 2,000 and 3,000 ft.; secondly, the cultivated zone, lying between 3,000 and 6,000 ft.; thirdly, the humid forest zone, between 6,000 and 10,000 ft.; fourthly, the Alpine belt, of grass and scrub, up to 13,000 ft.; and finally the peak itself or High Alpine zone, from 13,000 to the apex.

The Fauna and conditions of these belts is discussed by the author in the first 80 pages, which are most interesting reading, illustrated by eighteen plates of really fine photographs of the people and the scenery.

The Vertebrata and Molluscs occupy a relatively small space, for it is the insects which take up the bulk of vols. i. and iii., and the whole of vol. ii. The Coleoptera are worked out by no less than twenty-three specialists; the Hymenoptera are well treated, but the Lepidoptera take up much less space. They are dealt with by Professor Aurivillius, who enumerates 202 species of Rhopalocera and 335 of Heterocera. It is pleasant to see the so-called neglected orders dealt with in such detail. The Diptera, partly by Sjöstedt himself and

partly by Speiser, occupy 206 pages, or about four times as much space as the Lepidoptera, thus reversing the usual order of things. The Siphonaptera, by the Hon. Charles Rothschild, are interesting; there were 250 specimens, representing six species of which three were new, one requiring a new genus. The Anoplura are treated by Enderlein, and the Neuroptera, Pseudo-neuroptera and Hemiptera by various authors; of the latter order, the *Gerridae*, *Corixidae* and *Notonectidae* were worked out by the late G. W. Kirkaldy, who enjoyed an unrivalled knowledge of these groups, his early favourites.

The Orthoptera are discussed by Sjöstedt himself, with the exception of the *Blattodea* by Shelford and the earwigs by Burr.

The *Corrodentia*, *Collembola* and *Thysanura* are also well treated. Leaving the insects we find the *Myriapoda*, *Arachnoidea*, *Decapoda*, *Isopoda* and *Vermes* treated in detail by various specialists.

It is a great work and a splendid monument to the energy of Professor Sjöstedt and to the public spirit and generosity of his country and countrymen, who are always ready and willing to come forward in the support of Science.

SOCIETIES.

CITY OF LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY.—*November 7th*, 1911.—ORTHOSIA LOTA FROM FRANCE.—Dr. T. A. Chapman exhibited three specimens bred from larvæ taken at Amélie-les-Bains, South France, and fed on *Coriana myrtifolia*; the three imagines (all that emerged) were of three different forms, leaden, dark red, and fulvous, pointing to the existence of much more variation than is found in the British race. MELANIC ACIDALIA VIRGULARIA.—Mr. G. H. Heath, a specimen taken at Brockley, September, 1911, of a unicolorous dark grey with white cilia. CERASTIS VACCINII AB. SUFFUSA.—Mr. B. S. Williams, two examples taken at Finchley, September, 1911. EMATURGA ATOMARIA ♀ WITH ♂ COLORATION.—Mr. H. B. Williams exhibited a ♀ with tawny ground colour of ♂, taken at Oxshott, July, 1911.—*November 21st*, 1911.—LEPIDOPTERA FROM MUCKING.—Rev. C. R. N. Burrows exhibited a number of lepidoptera taken in his garden at sugar during September, including one *Mellinia ocellaris*, *Calamia lutosa*, *Leucania comma* (presumably a second brood), a melanic *Thera variata* and *Melanippe fluctuata* var. *costovata*. PYRAMEIS CARDUI AND HIGH TEMPERATURE.—Mr. L. W. Newman, a long series bred *ab ovo* from a Folkestone ♀ taken on September 2nd; the larvæ were fed up in a temperature of about 80°, and all the imagines had emerged by October 16th. In a few specimens the inner large white apical blotch was almost entirely obscured by black scaling, while many others showed the same peculiarity in a less accentuated degree. VANESSA IO AB. CYANOSTICTA.—Mr. H. B. Williams, a series including an example of this aberration bred from larvæ taken at Chalfont in July. VARIATION IN CHESIAS SPARTIATA.—Mr. A. J. Willsdon, a series from the Wanstead district, including pale grey, brownish, reddish-fawn, and melanic forms. ÆGERIA MYOPÆFORMIS.—Mr. Willsdon also exhibited a series of this clearwing, and stated that it had been secured by searching the grass at the foot of apple trees early in the morning. CELASTRINA ARGIOLUS, THIRD BROOD.—Rev. C. R. N. Burrows reported the appearance of a third brood at Mucking late in September.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY.—*November 20th*, 1911, Dr. John Cotton in the chair. LECTURE.—Dr. F. F. Tinne read a paper on "The Application of the Lumière Process of Colour Photography to Entomology," and in the course of a most interesting address exhibited a number of colour portraits of lepidoptera in their native haunts, as well as pictures of places he had visited when in the pursuit of insects. It is quite evident that there is a great future for this class of work, as soon as coloured prints can be taken direct from the negatives. SCOTCH LEPIDOPTERA.—Mr. Robert Tait, Junr., exhibited a fine lot of insects from Braemar, the results of his summer holiday, which was spent in that locality. These included a very fine series of *Plusia interrogationis*, *Dasydia obfuscaria*, *Coenonympha tiphon*, *Anthrocera exulans*, *Nemeophila plantaginis*, and var. *hospita*, the last being obtained as a partial second brood in October. Varied but smaller series of the following were also shown: —*Cidaria populata*, *C. immanata*, *Coremia munitata*, *Larentia caesiata* and *Halia brunneata*; Mr. Tait further contributed an interesting account of his holiday with remarks upon the variation, etc., of the insects captured. POLIA CHI.—Mr. Wm. Mansbridge exhibited a series of *Polia chi* taken in the Huddersfield district on August Bank Holiday comprising the melanic forms for which that neighbourhood is famous.— THE ANNUAL MEETING was held in the Royal Institution, Colquit Street, Liverpool, on December 18th: Mr. William Webster in the chair.— As Mr. W. J. Lucas, the retiring vice-president, was unable to be present to read his address "On the Present State of our own Knowledge of the Pre-imaginal Stages of the British Dragonflies," this was done by the secretary. Mr. Lucas dealt lucidly and in detail with the various methods of oviposition obtaining in the Odonata, drawing particular attention to the habit *Ischnura elegans* possesses of descending beneath the surface of the water for this purpose, and to the two types of Dragonfly eggs:—the elongate, cylindrical type, such as is met with in *Æschna* and the more or less oval or pear-shaped type found in *Sympetrum* and *Libellula*. The development of the nymphs, their form, habits and food, the duration of the nymphal existence and other features of Dragonfly bionomics were then dealt with in an equally interesting and exhaustive manner, the fact being emphasised that although of recent years a considerable amount of work had been done, and our knowledge of the life history of these beautiful creatures had been greatly increased, there yet remained a vast amount to be done in the future. The latter part of the address consisted of a review of the progress of our knowledge of the earlier stages of Dragonfly existence, commencing with Thomas Moufet's "Insectorum Theatrum" and bringing the subject down to the present day. The address and the excellent lantern slides with which it was illustrated, were greatly appreciated by all who were present. Mr. C. B. Williams exhibited a box of Lepidoptera, collected during the past season in various localities and including the following:—*Taeniocampa munda*, *Xylina socia*, *X. ornitopus*, *Xylocampa areola*, and *Oporina croceago* from the Conway Valley; *Brenthis selene*, *Cyclopides palaemon* and *Nemeobius lucina* from Northamptonshire; *Boarmia roboraria*, *Gnophria rubricollis*, *Diacrisia sannio* (*russula*), *Hemaris fuciformis*, *Plebeius argus* (*aegon*) and *Brenthis euphrosyne* from the New Forest.

A Week at Braemar.

By RUSSELL E. JAMES.

In a summer of almost unbroken sunshine circumstances have prevented me from doing more than a very moderate amount of collecting. Nevertheless I have managed to fulfil a longstanding promise to myself of a visit to Braemar—the British home of *Anthrocera exulans*. What Braemar could be under bad conditions I can well imagine, but as we saw it, it was to a Southerner, an Entomological Paradise. The very conditions which made the holiday so ideal frustrated our designs upon the two species for which we had specially planned the trip, and when I arrived on July 7th I found my companion—Mr. Galpin, of Oxford—most disconsolate. I must admit that he had a case. In the first place he had come at great inconvenience, and only after I had painted our prospects in glowing colours, figuratively dangling long series of *A. exulans* and *Psodos trepidaria* before his eyes, and then I turned up a day late. I arrived on the day on which I had all along intended to arrive, but he insisted that I had mentioned the day before, and unfortunately for me, had documentary evidence to prove it; I had undertaken to make all the enquiries as to the best ground to work, so until I arrived he was at a disadvantage. Add to this that the day had been dull and inclined to rain, I had sent no word of my movements, and the railway motor breaking down had again made me two hours late, and it will be realised that the situation facing me was a delicate one. Mr. Galpin had further gathered the information that owing to an abnormal June both *A. exulans* and *P. trepidaria* had been well over for a week past. We had poor success that night and the gloom reached its lowest ebb, but the next morning the hot spell commenced. We henceforward had a great time, and in the end were more than repaid for missing *A. exulans* and *P. trepidaria*.

We had obtained special permission to work the Invercauld deer forest on the further side of the Dee, and it was there we spent most of our days. The morning of the 8th was an ideal one, and in spite of discouragement from Messrs. Tait, Mutch and Horne, who had all been at Braemar for some time, and evidently spoke with knowledge, we deemed it our "duty" to at least see the *exulans* ground. We pushed on up to about 2,500 feet and found their tale only too true; no sign of anything at the higher levels except one or two *Scopula alpinalis*. However, the view was glorious, we had a fine sight of some red deer, and moreover on the way down got a good general knowledge of this part of our ground. We subsequently learnt from the head-keeper that *A. exulans* had been out in early June, and that *P. trepidaria* was swarming on all the heights three weeks before our arrival. The keeper's information is probably reliable, as he has had considerable training at the hands of Mr. Percy Bright and others, and all the hints he gave us as to "Obeliscatas" (his version of *D. obfuscata*) and other species proved to be very accurate.

A. exulans seems to be confined to one, or at most two, of the mountains, but occurs over a considerable area, and apparently in spite of continued onslaughts is in great numbers. *P. trepidaria* on the other hand seems to occur abundantly on most of the higher

mountains around, resting on and flying over the short turf on the extreme tops. We did actually see *A. exulans* alive, as Mr. Mutch still had some living females for breeding purposes, and one of these I brought away as a type, until another visit enables me to take my own series.

The insect of the visit was *Dasydia obfuscata*, and here of course the forward season helped us. Nevertheless, I should gather that it was far more plentiful than usual, and although the slopes of the Invercauld estate were its headquarters, it also occurred sparingly on the hillside behind the town, and by the 11th was just commencing to emerge up Glen Callater.

Glen Callater (to the south) was another of our favourite grounds, and was distinctly useful in being a week or ten days more backward than the Invercauld Estate. It enabled us to crowd the advantages of a fortnight's collecting into six days, and thereby we both obtained fine series of *Coenonympha typhon*, which was practically over everywhere else. The Glen is very fascinating, the bare and steep boulder-strewn slopes to the east, and the utter absence of tree or shrub giving it a wildness of aspect quite different from the pine and birch-clad slopes of the Dee side. But the most curious thing about the glen is that the burn appears to be flowing up-hill. Entering it at its narrowest part, it steadily broadens out as one ascends, and it must be this effect of broadening instead of narrowing that conveys the irresistible impression that one is descending instead of ascending, and nothing but the evidence of flowing water would have convinced me to the contrary. Here, more than anywhere else, one had evidence of the drought, a large expanse below the loch, which must usually be a peat bog, being hard-baked and cracked.

All our evening work was done in the upper glade of the birch-wood behind the town and on the hillside above. We treacled every night in this top glade, but only on the 8th did any numbers come, all the nights but this one being clear and somewhat chilly.

One does not find *D. obfuscata* easily at first, but on getting to know their habits they proved to be in astonishing numbers. They sit head downwards on rocks, always in the shade, always low down, and are specially fond of overhanging surfaces. They prefer small boulders to sit on, even small stones in the pathways, and are quite conspicuous when once one's eye gets in. They were very restless owing to the unusual heat (we had 85° in the shade even at Braemar), but the considerable number seen flying were, I believe, only seeking fresh resting places as their own became exposed to the sun. Mr. Galpin preferred striking the stones to searching, and by this means obtained nearly as many as myself. This method, however, has the disadvantage that the older specimens fly off more readily than the quite fresh ones. Moreover, every specimen has to be netted, and generally after a chase, as the species is no mean flyer. It is an extraordinarily difficult insect to get home in quite perfect condition, and although I imagined I had taken ample for supplying my own wants and those of my friends, I found in the end that I had difficulty in picking out even one full cabinet row quite without reproach. Probably the extreme heat helped to make them restless, but the number that proved to have in some degree damaged their thoraces and fringes was appalling. They were distinctly scarce on

the ground we worked at night, but one or two were netted on the wing after dark. These were the only ones seen in natural flight, and we saw nothing to confirm a report I had heard of a late afternoon flight.

Plusia interrogationis, a genuine day-flyer, was also in great numbers, but wanted much catching and more getting home in condition. By using the largest size boxes, however, a very fine lot were eventually obtained. This species also frequently rests on the rocks, but unlike *D. obfuscata* chooses the large and lichen-covered boulders, and rests high up frequently even on top. A fair number were found thus, in the late afternoon, but they also settle down for a time at mid-day, then always in the shade. Even during the time of flight, they rest quite as frequently on the rocks as on the heather, and they are always far more difficult to see than *D. obfuscata*. In fact when actually resting on lichen, the colouring, aided by the irregular outline of crested thorax and fine forewing fringes, affords such marvellous protection that I probably overlooked many more than I found. On a number of occasions, after boxing a specimen, a second was discovered within a few inches, and until then quite unnoticed. This species also was only just coming out up Glen Callater on the last day. We only saw one specimen on the wing after dark and none were attracted by the *Epilobium* flowers mentioned later on, so I should imagine that if there is a night flight it is only a very partial one.

Larentia caesiata in very great variety was everywhere, but nowhere so abundant as in the pinewoods on the hillsides over the river. Here as one walked through they rose from the trunks and ground in countless numbers, but the best specimens were picked off the rocks, quite freshly emerged. *L. salicata* was practically over, a few worn specimens being netted at early dusk. Even at dusk it is easily distinguished on the wing from *L. caesiata* by its very feeble flight.

Another species of which a long series was taken was *Emmelesia minorata* (*ericetata*). It was not nearly so abundant as any of the foregoing species (except *L. salicata*), and the only time it occurred in any numbers was in Glen Callater on the 12th, when it flew freely all the afternoon. On the Invercauld ground I should imagine it was over, as only a few were seen, and these all at the higher levels, where on the 8th a moderate number were on the wing at and before midday. Seeing that it was flying from before dusk until long after on the hillside we worked at night, it seems to have a very protracted time of flight, as all the flights that we observed were perfectly natural ones. Although so tiny, it is a robust little species, well adapted to the rough conditions of its mountain home, quite strong on the wing and scarcely ever shewing any wear.

In the late afternoon, and until nearly sunset, *Halia brunneata* flew over the junipers in the birch wood in great numbers. It was very local and frequented the more open parts, especially just below the top glade, where we treacled at night. Here we could frequently net several at a single stroke, but until flight commenced not a specimen could be found, or even thrashed out. Many were getting worn, but they were so plentiful that any number of good ones could have been taken. *Eubolia plumbaria* occurred on the *obfuscata* ground, very ordinary forms, common but quite local, and on the rocks and pine trunks were a few beautiful *Boarmia repandata* var. *sodorentium*.

Nearly all the females were sacrificed for ova, but in vain, as they could not be induced to lay.

A few *Acidalia fumata* were walked up in the heather, but were almost over, and among the pines were a number of *Thera variata*, occasional *Ellopia prosapiaria* (*fasciaria*) on the trunks, and a few *Bupalus piniaria* on the wing. *Polyommatus icarus* was common, and probably would have paid for working, but we never got time. A few *Brenthis selene* were about and *Argynnis aglaia* already well out, a few very fine dark females falling to each of us. The males on the contrary seem to show no difference from the southern type.

The only other species taken on this north side of the river were occasional *Coremia munitata*, *Melanthia ocellata*, and *Merrifieldia tridactyla* (*tetradactyla*), a single *Eupithecia pulchellata*, and a very short series of *Scoparia alpina*. Mr. Mutch took *Crambus myellus* one evening, but we never worked the ground at night. For one thing, night work scarcely commences before 10 or 10.15 p.m., so light are the evenings, and the head keeper, who looked after us well, and always rowed us across the Dee, rose very early in the morning, and we suspected him of keeping equally early hours at night. He added greatly to the pleasure of the days, with his many anecdotes and experiences. Invercauld being the next estate to Balmoral, his knowledge of Royalty is as local and peculiar as his entomology. He would say for example "He is a nice young chap, the young Prince of Wales; have you ever met him to speak to?" as if one might meet him casually in town. His discretion on such subjects however is beyond reproach.

Each evening, as I said before, we spent on the hillside, behind the town, working up through the wood and getting treacle on in time for the earliest dusking. One of the first species to fly was *Scopula alpinalis*, then *Larentia caesiata* and a few *L. salicata*, followed by *Hepialus velleda*, *Lycophotia strigula*, and *Eupithecia nanata*, the first of the three already worn to rags. It was almost dark before *Coremia munitata* flew, and a very fine series was taken of this species, about 20% being of a yellowish form. They flew and rested on the heather for short intervals and flew again, right on till we gave up about 12.0 or 12.30.

Melanthia ocellata occurred occasionally in the wood, with several familiar southern species such as *Melanippe montanata*, *Cabera pusaria*, *Metrocampa margaritaria*, and *Larentia viridaria* (*pectinitaria*).

Cidaria (*truncata*) *russata* was also common in the wood, coming freely to treacle, and was a fine strongly-marked race of varying forms. The white-banded form was, I think, the finest.

Round a cottage, high up on the hillside, was a magnificent lot of willow herb (a garden variety), unfortunately not discovered until the last evening—a very chilly one. Judging by the numbers of moths attracted on this cold night, I regretted missing it earlier. There were plenty of *Larentia caesiata*, *C. truncata*, and *Noctua festiva*, a fair lot of *C. munitata*, three fine *Plusia pulchrina*, and an odd *P. chrysitis*.

A single *Carsia imbutata* was seen by Mr. Tait on the last night, and walking home through the wood, quite late, a fine *Eupithecia togata* was netted. We were expecting *Thera cognata* (*simulata*), but although we closely watched the juniper clumps it was evidently not yet out.

Cidaria populata occurred on the last two nights, and was commonest on the edge of the wood. I should have liked another week at this species, as the short series obtained showed remarkable variation. Some of them were a deep unicolorous chocolate, with all grades between this and the type. I never worked this ground by day myself, except running up in the early evening after *H. brunneata*, but on one afternoon when I was up Glen Callater, Mr. Galpin took a few *Aricia medon* (*astrarche*) var. *artaxerxes* and saw some *Nemeophila plantaginis*. *Acidalia fumata* was also rather commoner here than over the other side, probably because everything this side was a little more backward. *A. medon* var. *artaxerxes* was occasionally found at rest on the heather at night, the white-spotted underside showing up very clearly in the lamplight. Larvæ of *Saturnia pavonia* (*carpini*) and *Noctua neglecta* were also frequently found in the same way, and one larva of *Asphalia flavicornis* was noticed on a small birch.

We should have done much better with treacle a fortnight earlier, as nearly everything was worn. I can imagine great work might be done with *Noctua festiva* alone, some of the forms being very fine. Two of the finest are a clear French-grey form, and another of the same colour banded with chestnut. Both these forms were represented only by bad and indifferent specimens, but I saw enough to make me regret having missed this species even more than *A. exulans*. *Hadena* (*Hyppa*) *rectilinea* was also over, only three specimens (two fair and one poor) occurring on the 8th, and no others. The best series taken at treacle were a fine dark lot of *Hadena adusta*, in good condition, and there were also a few very rich *Xylophasia rurea* var. *combusta*, but only a single specimen of the type. Few other *Noctuae* were seen; *Xylophasia polyodon* was strictly typical—not the faintest sign of darkening—and a few worn *Noctua rubi*, *N. augur*, *Apamea gemina*, and *Caradrina cubicularis* complete the list—not even the ubiquitous *Triphaena pronuba*. The common Geometers *M. montanata* and *C. pusaria*, with an occasional *C. munitata*, were frequently attracted, and *Cidaria truncata* was commoner on treacle than anywhere else.

A long day spent up Glen Callater on the 12th, was planned mainly to work for *Larentia ruficinctata*, but as a thorough search over its special ground up by the loch proved that it was not yet out, we devoted ourselves to *Coenonympha typhon* and other things. A very fine lot were taken, but they wanted picking over, and a few more nice dark *C. populata* and occasional *Coremia munitata* were walked up. This was the one day when *E. minorata* (*ericetata*) was taken plentifully, and *Scopula alpinalis* was commoner here than elsewhere. It affects the grassy patches among the heather, and seems to be quite confined to such spots. Several oddments, such as *A. medon* var. *artaxerxes*, *Anarta myrtilli*, *Crambus margaritellus*, a strongly marked *Melanippe subtristata*, occasional *Dasydia obfuscata* and *Plusia interrogationis* and a lot of *Phycis carbonariella* made up a very big day's bag, and every box I had was filled—many of them twice over. I found *C. typhon* and *E. minorata* (*ericetata*) travelled quite well two in a box.

P. carbonariella is an extraordinary insect. It swarmed on a burnt patch of heather, where it was quite invisible at rest, and with the exception of one or two on a similar patch over the Dee, not a specimen was seen elsewhere. How do they find out these patches, and what happens to them when the heather grows again and no more patches

are burnt? They rose in twos and threes at every step on the burnt part, and there was not a specimen ten yards away. Yet it appeared to be only recently burned, and there were no other patches anywhere near—no others at all in fact that I could see. On this day I netted three female *Hepialus velleda* on the wing at mid-day, apparently ovipositing. This is the first time I have ever seen a "Swift" on the wing by day.

Anaitis plagiata occurred occasionally by day and night all over the ground, and a few *Eubolia mensuraria* also. I took some fine dark forms of the latter species at Pitlochrie twenty years ago, and was disappointed to find them here all strictly typical. *Botys fuscalis* and *Pyrausta purpuralis* turned up here and there, but *Crambus pascuellus* and *Scopula ambigualis* were respectively the only really common *Crambus* and *Pyrale* met with.

Tanagra atrata (*chaerophyllata*) rather surprised me by appearing each day in the meadow on the river bank, just opposite to the keeper's cottage, and this completes the list of moths seen.

The only remaining butterflies were the three common *Pieris* which occurred round the town, *Aglais urticae* just coming out (although young larvæ were still on the nettles) and *Coenonympha pamphilus* which occurred all over the hillsides.

It was a great holiday, and for the five and a half days we each of us brought away nearly a thousand specimens. Needless to say, we made no attempt at setting or even pinning, but killed with ammonia and packed in Newman's relaxing tins. With the fine weather and long clear evenings it is arduous work, as everything has to be done so much later than down south. We never looked at our treacle till after eleven o'clock, and when getting home about 1 a.m. one could still read the paper in the open quite easily, and that without any moon. Our plan of campaign was to leave home after early breakfast, get over the Dee and work through the wood on to our ground by about 9 o'clock. We took lunch with us, getting drink from the burns (and generally a bathe), returning about 5 p.m. for a big meal. We would then kill our captures, slip up to the wood for *H. brunneata*, etc.; back to tea; pack up the specimens in relaxing boxes, and then off again for the evening about eight, finishing with a bread and cheese supper upon our return in the small hours. Had we had more time we should not have kept up this pace, and as it was, on the last morning Mr. Galpin showed signs of crying "enough." While I was having a last turn with *D. obfuscata*, and as it proved my most successful (fifty picked specimens in an hour and a half), I found he had been sitting chatting with the keeper and watching the flight of a golden eagle. It was certainly a grand bird and well worth watching—poised in mid-air, perhaps half a mile above our heads.

We have seen the locality at its best, but I can imagine the two lines of the Nursery Rhyme referring to the little girl

> "When she's good, she's very very good,
> But when she is bad, she is horrid."

might well apply to Braemar. Braemar I imagine could be very "horrid." Taking this risk and the long journey into consideration, it will probably never be over-run, but we both came away feeling that with such conditions as we had had, Braemar is hard to beat.

Luperina (?) (Apamea) gueneei, Doubleday, as a species, and as a British species.

By Hy. J. TURNER, F.E.S.

(*Concluded from page* 20).

The Synonymy of this species now stands as follows :—

Nickerlii, Fr., 1845 (Niccerli, Hamps., 1908).
var. Gueneei, Dbld., 1864.
=Testacea var. Incerta, Tutt, 1891.
[nec Testacea var. A., Guen., 1852.]
ab. Baxteri, South, 1909.
ab. Murrayi, Turner, 1911.
ab. Fusca, Turner, 1911.
ab. Minor, Turner, 1911.
ab. Iota, Turner, 1911.
var. Graslini, Obthr., 1908.
=Testacea var. B., Guen., 1852.

The Synonymy of *L. testacea* so far as it bears on *L. nickerlii* is as follows :—

Testacea, Hb.
var. et ab. Gueneei, Staud. et Auct., 1871, etc. (nec Dbld.).
=Testacea var. A., Guen., 1852.

The Bibliography is as follows :—

1845. Freyer, *Neu. Beit. Schmett.*, v., 140, pl. 466, fig. 4.—***nickerlii***.
1845? Herrich-Schäffer, pl. cxi., fig. 565.—***nickerlii***.
(1852. Guenée, *Sp. Gén. Lép. Noct.*, i(v)., 182.—***testacea***, var. A).
1852. Guenée, *Sp. Gén. Lép. Noct.*, i(v)., 183.—***testacea***, var. B.
1861. Staudinger, *Cat. Lép. Eur.*, ed. i.. 332.—***nickerlii***, and ***testacea*** var. ***gueneei***.
1863. Graslin, *Ann. Soc. ent. Fr.*, p. 309, pl. 8, fig. 8.—***nickerlii***.
1864. Doubleday, *Ent. Ann.*, x., 123-4.—***gueneei***.
1871. Newman, *N. H. Brit. Moths*, p. 297.—***gueneei***.
1871. Staudinger, *Cat. Lép. Eur.*, ed. ii., p. 98.—***nickerlii***, and ***testacea*** var. ***gueneei***.
1885. Hodgkinson, *Ent.*, xviii., 54.—***gueneei***.
1889. Tutt, *Ent.*, xxii., 206-7.—***testacea*** var. ***gueneei***.
1889. South, *Ent.*, xxii., 271-2.—***testacea*** var. ***nickerlii***.
1891. Tutt, *Ent. Rec.*, ii., 21-22.—***testacea*** var. ***nickerlii*** (?).
1891. Tutt, *Brit. Noc.* and *Var.*, i., 138-140.—***testacea*** var. ***gueneei***, and var. ***incerta***.
1897. Barrett, *Brit. Lep.*, iv., 335 etc., pl. 173, fig. 1h.—***gueneei***.
1901. Staudinger, *Cat. Pal. Lép.*, ed. iii., pl. i., t68.—***nickerlii***, and var. ***gueneei***.
1908. Oberthür, *Bull. Soc. ent. Fr.*, 322, etc.—***graslini***.
1909. South, *Ent.*, xlii., 269-70.—***nickerlii***, ab.
1909. South, *Ent.*, xlii., 289-92.—***gueneei*** ab. ***baxteri***.
1910. Banks, *Ent.*, xliii., 75-78 —***gueneei***.
1911. Turner, *Ent. Record*, xxiii., 53, etc.—***gueneei***. 89, etc.—var. ***murrayi***, var. ***fusca***, and var. ***minor***, 171, etc.—var. ***iota***. 201, etc., pls. iii., iv., vii., viii. and ix.
1911. Porritt, *Ent. Month Mag.*, xlvii., 204, pl. iii., fig. 4.—***gueneei***.
1911. Pearce, *Ent. Record*, xxiii., 269-70.—***gueneei***.
1912. Turner, *Ent. Record*, xxiv., 17, etc., 87.—***nickerlii*** var. ***gueneei*** and var. ***graslini***.

A Month in Switzerland and elsewhere.

By GEORGE WHEELER, M.A., F.Z.S., F.E.S.

(*Concluded from page* 43.)

(xi.) St. Moritz and the Bernina Pass.—During my sojourn at Bergün I made two expeditions to the far side of the Albula Pass; the first of these was on the 8th of July, when my special destination was the lake

of St. Moritz, and possibly on to that of Campfer, and my special object the acquisition of *Brenthis arsilache*, which I had been given to understand occurred at the edges of these lakes. As I was travelling with friends who were going to Pontresina I changed at Samaden and went on with them, and starting off from Pontresina station by the wood path, made my way as far as the little Statzersee without meeting with any species of butterfly except *Erebia ligea* var. *adyte*. I had hoped to find *B. arsilache* at the edge of this little lake, but found no butterflies at all on the lake side of the road. On the bank sloping up to the right of the road *Coenonympha pamphilus* and *C. satyrion*,—of course in this district var. *unicolor*,—were abundant, and I saw a specimen or two of *Brenthis euphrosyne*, but in poor condition; a little farther on *Vacciniina optilete* was to be found on the same side of the road, together with *Polyommatus hylas*, *P. icarus* and *Aricia medon* (*astrarche*), as well as the three species previously mentioned, and after passing the Restaurant just above the end of the Lake of St. Moritz, in a hollow to the right of the road *Albulina pheretes* was not uncommon on the thyme blossoms, where *Plebeius argyrognomon* and *Agriades thetis* were also to be seen. Almost immediately below this, in the meadow leading down to the lake, I came across *Brenthis pales* var. *isis*, ♂s only in considerable numbers, some of the black spots from the upperside forewings of which showed through on the underside, so I concluded that it was useless to go on farther and had made up my mind that a mistake had arisen between this form and *B. arsilache*. On examining Mr. A. H. Jones's specimens from this neighbourhood after my return home I find that the mistake was my own, as he has both *isis* and *arsilache* from these parts, the former occurring in the meadows, the latter only in the swamps on the edge of the lakes, where one must be prepared for a good wetting if one determines to take it. It is some consolation that he assures me that had I penetrated the marshes I should almost certainly have been too early, in view of the fact that *isis* was so fresh and that only ♂s of this latter were to be seen. I still think it probable however that the confusion between *B. pales* and *B. arsilache* may have been caused, in part at any rate, by those specimens of the former which show some black spots on the underside forewing. The corresponding spotting in *B. arsilache* is altogether different. It is far blacker, strong and very pronounced, and does not in any degree give the idea of showing through from the other side. The upper side of the same wing is again far more strongly marked especially in its basal half; the transverse line nearest to the base is in *B. arsilache* so much further removed from the root of the wing as often to join the next transverse line, and to make an intricate black pattern with it and the half line starting from the costa which lies between the two; almost always on the upper side, and often on the under, the inner margin displays the curious *x*-mark so familiar in *Melitaea deione* var. *berisalensis*, and which sometimes appears in the type *deione* also. The general appearance of the underside hindwing is also very different; the long yellow streak from near the middle of the outer margin which is so very conspicuous in all forms of *isis*, and always in the ♀ and generally in the ♂ of the type *B. pales* also, and which even when not very conspicuous is always easily traceable, is, when visible at all, represented in *arsilache*, even in the ♀, by a slight enlargement of the orange-brown inside the lunule,

not in any way interfering with the silver-centred spot which in *isis* is often absorbed; the general colouring also of the wing in *arsilache* is much more purple-red than in either of the forms *pales* or *isis*. It is moreover confined to marshy ground and where it occurs in the neighbourhood of *isis* appears somewhat later; this however rarely occurs, for *arsilache* is as a rule to be found at much lower elevations; the fact moreover that when it is found at high levels, such as the Engadine, it still retains the characteristics of the lower altitudes and does not approximate towards the usual high level forms of *pales*, is rather a strong argument in favour of its fixity as a species. Nothing however but breeding experiments can absolutely determine the question.

On returning to Pontresina station I picked up a pair of *B. pales*, ♂ and ♀, of the *isis* form though rather smaller than usual, and then proceeded along the road leading to the Roseg glacier, the species met with here being *Polyommatus eros*, *Albulina pheretes*, *Agriades coridon*, *A. thetis*, *Plebeius argyrognomon*, *Parnassius delius* and *Oeneis aëllo*. I crossed over later to the other side of the torrent in hopes of finding *Brenthis thore* and *Melitaea maturna* var. *wolfensbergeri*, but it was getting late in the day which probably accounted for my failure, as I heard a day or two later that both species were out and not uncommon.

My second expedition in this direction took me on the 11th to the top of the Bernina Pass direct. There was still a good deal of melting, but as yet unmelted, snow about, and near the station I found nothing but large numbers of *Hesperia cacaliae*: I netted a great number in hopes of finding *H. andromedae* among them but amongst all I saw there was not a single exception. On starting to walk down to the Heuthal, but still on the top of the pass, and overlooking that astounding contrast of lakelets the Lej Alv and the Lej Ner, I came across several other species; *Erebia gorge*, (always of the var. *triopes*, showing that this really was the eastern alpine region at last), *E. lappona* and *E. tyndarus* were common, *Brenthis pales* was not scarce, there were a few *Pontia callidice* and *Melitaea varia*, and I took one example of each sex of *M. cynthia*, the ♂ being a very handsome aberration in which the white extends to the base of the forewing, broken only by a large round black spot, the hindwing also showing much more than its due proportion of white. I saw but little as I walked down to the Heuthal, and butterflies even there, though fairly abundant, were by no means in such profusion as I have seen them there later in the month. *B. pales*, and more especially the *isis* form with the ♀ *napaea*, was as usual extremely common, *Cyaniris semiargus*, *Albulina pheretes*, *Melitaea merope*, *Coenonympha satyrion* var. *unicolor* and *Erebia tyndarus* were by no means scarce, *Latiorina orbitulus* and *Melitaea varia* appeared, but no doubt became much commoner later, *Parnassius delius* and *Pontia callidice* were decidedly scarce, and there was a profusion of black-and-white skippers, those netted consisting almost entirely of *Hesperia cacaliae* and *H. serratulae*, but giving one example which I think may be safely regarded as the mountain form of *H. alveus*. I had expected on approaching the Bernina-Haus station to have found *Erebia pharte* again, but the railway has considerably altered the aspect of the ground and there was not time to hunt for its old locality under changed conditions.

If I was a trifle too early for the butterflies of the Heuthal, the flowers at any rate were in perfection, even the scarce *Daphne repens*, which is abundant here, having hardly passed its prime, and the little *Nigritella* being in profusion, and of every shade, from blood-red to nearly black, together with a perfect carpet of other brilliant species.

(xii.) Lyndhurst.—I had determined to cross from Havre to Southampton in order to get a day and a half at Lyndhurst on the way back, and succeeded in doing so after the most fearful crush at the Gare St. Lazare through which I have ever fought my way, although my experiences in this line include getting off from Birmingham station by the last train on the Saturday before an August Bank Holiday. But this was the eve of a three days " Bank Holiday " and *tout Paris* was off to the sea, and a free fight ensued before it was possible to obtain even standing room in the corridor. However, we did arrive at Lyndhurst by about 10.30, and arranging for a late lunch I went off into the Forest, which, as I was not wanting to sugar on this occasion, seemed wonderfully little changed since I last saw it some 15 years ago. There was however uncommonly little on the wing. *Gonepteryx rhamni* was fresh and abundant, *Dryas paphia* fairly common but not very fresh, and the same may be said of *Aphantopus hyperantus* and *Epinephele jurtina*; *Plebeius aegon* on the other hand was fresh but not abundant. *Limenitis sibylla* was so completely worn out at this early date that I am not surprised at seeing notices of a partial second brood this year, though I have never met with a case on the Continent. I saw one or two *Rumicia phlaeas*, not more than 3 or 4 *Coenonympha pamphilus*, a dozen or so of *Pieris napi*, and a single specimen of *Argynnis adippe*. Nor was the next day much better, though a rather worn specimen of *Brenthis selene* came somewhat as a surprise, as it was so very late for a first brood specimen and so old-looking as well as so early for one of a second brood. On this day I saw two or three *D. paphia* var. *valesina* and captured one in excellent condition. On the whole Lyndhurst was disappointing, but I was glad to have visited it again and thus rounded off a month, which, though spent chiefly in Switzerland, had also included days in France, Germany, Italy and England.

Notes on Collecting in 1911.

By C. W. COLTHRUP.

In response to a request for collecting notes on the Season 1911, the following may be of interest. My notes in the Spring are rather meagre owing to photography in connection with Ornithology and Oology claiming nearly all my attention. On January 22nd I brought *Macrothylacia rubi* larvæ indoors to force. After wandering about the box all the week they started spinning up on the 28th, pupated on the 31st and began emerging on February 19th.

On March 4th, near Bromley, Kent, I took *Hybernia leucophearia*, some were fresh including one melanic specimen, but the majority seen were worn.

On March 29th a visit to the New Forest for three days with Mr. Tonge, where we were joined by Mr. Lyle, proved most successful. It was the sixth annual attempt to get a good night at the sallows. Usually we had experienced the worst weather possible, very cold and very few insects about. On this occasion we had three good nights,

with light N.E. wind, and warm. The usual sallow insects were in abundance and very variable, with the exception of *Taeniocampa gracilis* and *Pachnobia rubricosa*, neither of which put in an appearance at all, but we were probably too early for them. The insects taken at sallow were *T. miniosa*, *T. munda*, very plentiful and variable, *T. instabilis*, *T. cruda*, *T. gothica*, *Xylocampa lithoriza*, *Panolis piniperda*, *X. socia* (*petrificata*) (twelve in excellent condition considering their having hibernated), *X. ornithopus* (*rhizolitha*), also plentiful and in good condition, but *Scopelosoma satellitia* and *Cerastis vaccinii* were almost unrecognisable. *Hybernia progemmaria* and *Lobophora lobulata* were netted, and one *Anisopteryx æscularia* was taken at rest on a street lamp.

The weather on the 30th was glorious, and a visit was paid to Queen's Bower, where we found *Tephrosia bistortata* fairly plentiful on tree trunks, and a specimen of *L. lobulata* was discovered just emerged and drying its wings on a birch trunk, the green bloom on the wings looking very beautiful, but like most of the greens it soon fades. A number of *Gonepteryx rhamni* were seen, and three *Vanessa io* were netted in the hopes of getting ova, but they all proved to be males; one specimen had hardly any hindwings left. *Brephos parthenias* was fairly plentiful but almost impossible of capture, flying so high, and a pair of stonechats had much the best of the fun, frequently proving successful.

On April 16th *Biston hirtaria* were taken on tree trunks in East Dulwich, on the 17th a ♀ *Dianthœcia cucubali* (from Walmer larva) emerged in a breeding cage, and on the 19th *Saturnia carpini* (from Eastbourne larvæ) started emerging. On the 20th a ♀ *B. hirtaria* laid ova in cotton wool, these eventually hatched on May 13th.

Tiliacea aurago ova, from a New Forest ♀, started hatching on the 21st. In the previous autumn I noticed that the ♀, after laying the first batch of fertile ova, laid infertile and fertile ova intermittently, as do also ♀ s of *Dasycampa rubiginea* and *Polia chi*.

On April 24th, at Christchurch, Hants, *V. io* was seen, also the first *Pieris rapae* of the year, on the 28th *Dasychira pudibunda* started emerging in my cages, and on May 5th *Hadena pisi* followed suit.

On May 8th *Celastrina argiolus* were seen in some numbers in East Dulwich, and on the 9th were plentiful at Winchester, Hants. On the 10th a flying visit was paid to the New Forest for *Boarmia cinctaria*, when I was fortunate in having the company of Mr. Lyle, who never tires of helping brother entomologists. The day was excessively hot, and as firing was going on in the usual habitat of *B. cinctaria*, we had to seek them elsewhere. Arriving on the ground it was not long before a worn ♂ was discovered at rest on a pine trunk, and soon after a ♀ in perfect condition, which was duly photographed. I had just finished the exposure, when to our surprise spots of rain began to fall, dark clouds gathered all round, and we were soon in the midst of one of the worst storms I ever remember, which lasted for over four hours. However, I suppose I must reckon myself lucky as we managed to get back to Brockenhurst comparatively dry, and the *B. cinctaria* ♀ laid me a nice batch of ova in the pill-box. These hatched on May 25th, the larvæ fed up very quickly, pupated on June 20th, and are now going over the winter in that state, there being no attempt at a second brood, notwithstanding the abnormal weather.

On May 12th I visited a Hampshire marsh, chiefly for camera work. The outstanding feature of the day was the extraordinary abundance of *P. napi*. *Thera variata* was found at rest on pine trunks and several ♂ *G. rhamni* and *C. argiolus* were seen, also one ♂ *M. rubi* careering madly in the afternoon sunshine.

On the 15th, at Rye, Sussex, *C. argiolus* was flying freely in the streets, and on the same day my first *Dianthœcia carpophaga* emerged in the cage from an Eastbourne pupa. They continued to emerge through May and June, producing some very nice white forms.

On the 16th, on the Downs near Lewes, *Mesotype virgata* (*lineolata*) was kicked up on a non-entomological trip, and *C. argiolus* was the reverse of scarce in the streets of the town, and I voted it at the time as being very plentiful this spring. On the 17th I took at Brighton a number of *Abraxas grossulariata* larvæ from eunonymus bushes in the hopes of breeding a stray variety, but the sight of two of the larvæ on the wall with a mass of yellow ichneumon cocoons on both sides of them, gave little hope of getting a *grossulariata* imago at all. On my return home on the 18th I found a ♂ *Mimas tiliae* and a ♂ *Amphidasis betularia* emerged in a cage, the former from Margate and the latter from East Dulwich pupæ. *T. aurago* larvæ had now finished feeding and were spinning up between maple leaves, where they remained till they pupated in the first and second week of August. On the 19th a ♂ *Triœna psi*, of the dark London form, was seen on a lime trunk at East Dulwich freshly emerged (the last two specimens of this species emerged in my cage on July 3rd), and a ♀ *Hemerophila abruptaria* of the dark ♂ coloration was taken from a fence at Norwood. On the 22nd, at Rye, Sussex, *C. argiolus* was still flying freely, and I found them equally plentiful at Folkestone on the 24th. At Deal sandhills, on the 25th, *M. virgata* (*lineolata*) was common at dusk, and two ♂ *Aspilates citraria* were taken, while two ♀ *Spilosoma menthastri* came to light. On May 27th the first *Apatela aceris* (East Dulwich pupa) emerged in my cage, and another ♀ *H. abruptaria* with dark ♂ colouring, was taken at rest on a lime trunk at East Dulwich, and laid ova on the 28th. These hatched on June 4th and fed up very slowly (as compared with *B. cinctaria* larvæ), one larva pupated on July 31st and the last on August 25th, producing a partial second brood, two ♂s emerging on September 23rd and five ♀s in November. The remaining pupæ going over the winter.*

On May 28th the first *Cuspidia megacephala* (East Dulwich) emerged, and the last on July 14th. *Dianthœcia conspersa* (Eastbourne larvæ) also started emerging on the 28th, on the same day on a Surrey heath *Anarta myrtilli* was fairly plentiful, flying in the morning sunshine, and *Tephrosia punctularia* was noted at rest on birch trunks, some worn, others quite fresh. On June 2nd a visit was paid with Mr. Tonge to the locality for *Pachetra leucophœa*, and we were successful in getting a short series each. Some were badly worn, others in the best condition. One was found at rest on a tree trunk by day-searching, also several *Nola cristulalis*, and one *Habrostola triplasia* at rest in the bathroom where we stayed.

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* Since writing the above, I had a ♀ *H. abruptaria* emerge on Feb. 10th, another on the 17th, and a ♂ on the 25th, ♀s on February 28th and 29th, and a further ♀ on March 11th, 1912.

Day work produced *Scoria lineata* (*dealbata*), just emerging, *Ematurga atomaria*, very bright yellow ♂ s, *Euclidia mi*, *E. glyphica*, *Nisoniades tages*, *Hesperia malvæ*, *P. rapæ*, *P. napi*, *Euchloë cardamines*, *Brenthis euphrosyne*, *Agriades thetis* (*bellargus*), *Polyommatus icarus*, *Cupido minimus*, *Aricia medon* (*astrarche*), *Anthrocera trifolii*, *Cidaria truncata* (*russata*), *S. menthastri*, and *M. rubi*.

We had great sport with the *M. rubi*. Mr. Tonge had brought a ♀ which he carried in a bag, and which we had quite forgotten. At 4.30 p.m., however, I spotted a ♂ flying round, and on putting the ♀ down in the grass, we soon netted eighteen ♂ s in good condition, but were forced to leave just as things were getting lively in order to prepare for night work, and get some tea. Returning again to the ground at 6.30 p.m., we found the ♂ s still plentiful, and we soon had a good series in splendid condition, the last one came at 8.30 p.m. While waiting for this last ♂ to turn up, a loud buzzing noise was heard in the grass, and on following it up, I found a large ♀ *M. rubi* busily ovipositing, which I transferred to a pill box, where she laid a large number of ova during the night. Most of these ova duly hatched, but a number produced a small fly, which emerged from a small hole bored through the micropyle. Night work only produced *Grammesia trigrammica* (*trilinea*) and *Apamea basilinea* besides *P. leucophæa*.

On the evening of June 6th, while strolling across a sunny heath watching birds, I kicked up *E. atomaria* ♂ s, which were very dark, hardly any yellow showing, and also a few *A. myrtilli* in good condition. Both flew a short distance, settled on heather, slid head downward to the earth, where they lay quite still on their backs, and were difficult to see and more so to pillbox.

On June 12th another visit was paid to the locality for *P. leucophæa* with a friend, when, to our surprise, we found that *A. trifolii* was quite over and *S. lineata* (*dealbata*) nearly so. *E. atomaria* ♂ s and ♀ s were still in the best condition, and some nice forms were taken, also one freshly emerged *A. filipendulæ*, and several ♂ *Diacrisia sannio* (*russula*) and a ♀ *M. rubi* were walked up in the long grass. In the evening sugar was duly applied to posts and trees, and a sheet erected. Just as we had finished our preparations two bulls and some cows appeared on the scene. The former came for us in an ugly way, and we felt somewhat easier when on the other side of the fence. After a short wait, I had a most exciting time recovering the sheet, and on our making an attempt to visit the sugar, the attack was renewed, and as the bulls were making desperate efforts to get through the fence, we thought "discretion the better part of valour," left them to it, and contented ourselves with a few trees sugared outside the field, but the only insects that came were *Rusina tenebrosa*, *Noctua festiva* and *Apamea gemina*.

On June 14th, at Folkestone, sugar was again tried, when *Triphæna pronuba*, *A. basilinea*, *R. tenebrosa*, *A. gemina*, *Hadena dentina*, *Agrotis corticea*, and *A. exclamationis* put in an appearance. On the following evening sugar on a small sandhill on Romney Marsh produced only *Mamestra albicolon*, *A. gemina*, *A. corticea*, *A. exclamationis*, *Leucania pallens*, and *T. pronuba*.

On the 23rd full fed *B. hirtaria* larvæ were resting on lime trunks at East Dulwich, preparatory to going to earth, and on the 28th full

fed larvæ of the same species, about twice the size were taken off lime trees in North Kent. In both cases the larvæ went to earth on the following day. The first *Arctia caja* emerged on June 30th, and *Hecatera serena* was taken in a Nunhead garden at dusk, at the flowers of stocks.

On July 8th, near Croydon, *Cuspidia megacephala*, *Boarmia repandata*, and *X. lithoxylea*, and pupæ of *A. grossulariata* were taken off fences, and by searching flowers and seedheads of *Silene inflata*, larvæ of *Dianthœcia conspersa*, *D. cucubali*, *D. capsincola* and *D. carpophaga* were taken, mostly half grown, but some of the last species were full fed.

On July 11th *Mania maura* came to light at East Dulwich, and on the 15th I went for a three weeks' stay at Eastbourne. During my visit I found *Bryophila muralis* (*glandifera*) decidedly scarce, and other entomologists I met had the same experience. On July 16th I took larvæ of *D. conspersa*, *D. capsincola* and *D. carpophaga* in seedheads of *S. inflata*. On the 17th, sugar was tried but owing to the high wind very few insects came, those noted were *Xylophasia polyodon*, *Agrotis lunigera*, *Leucania conigera*, *X. lithoxylea*, *X. sublustris* and *Caradrina taraxici*. Cocoons of *A. filipendulæ* were plentiful, but no imagines were seen. Sugar was again tried on the 18th when only *T. pronuba* *X. polyodon*, *Apamea didyma* (*oculea*), *Miana literosa* and *L. pallens* turned up. A number of *Melanippe galiata* were netted or taken *in cop.* on the grass stems after dark, also a ♀ *Cosmotriche potatoria*. *D. carpophaga* ova were found freely, on flowers of the Sea Campion (*Silene maritima*); one flower had eight and another five ova. While going the rounds of the sugar a great buzzing of wings was heard. Turning our lamps in the direction of the sound, a cloud of moths about the size of *X. polyodon* were seen hovering about two feet from the ground, their bright eyes gleaming. They were no doubt assembling, but we quite failed to discover the females.

A ♀ *T. psi*, taken earlier in the evening at rest on a telegraph pole, suggested a very extended emergence, as my first specimen of this species was taken at rest on May 19th.

On July 19th, at Beachy Head, only one imago of *A. filipendulæ* was seen, three or four *A. corydon* ♂s, one *Hipparchia semele*, one *Sesia stellatarum*, one *Argynnis aglaia*, and four ♂ and one ♀ *Porthesia chrysorrhœa*, the latter at rest on blackthorn. In the evening I was surprised to note the extraordinarily strong flight of the last named.

On the 20th some nice forms of *A. grossulariata* were taken, also a ♀ *Amorpha populi* at rest on a poplar tree, and on the following day a pair of the latter were found *in cop.* on another poplar tree, at 10.45 a.m. A nice batch of ova were obtained on the 22nd, which hatched on the 29th and resulted in a number of pupæ, but no second brood emerged. Some of the newly hatched larvæ were very restless and refused to feed at all. *Epinephele tithonus*, *E. janira*, *P. icarus*, and *Aglais urticæ* were flying along the hedges, and a pair of *P. rapæ* were noted *in cop.*, the ♂ carried the ♀ when disturbed. Mr. Sharp had nine *D. cucubali* emerge as a second brood on this date. After dark *Mania maura* and *M. typica* only came to sugar. *L. pallens*, *L. impura*, *L. straminea*, and *C. phragmatidis* were netted, and a full-fed *Dicranura vinula* larva was taken off a poplar. On the 23rd I took my first and only *B. muralis* (*glandifera*) during my stay, it was the

var. *viridis*, Tutt. On the 24th *Eremobia ochroleuca*, *Plusia chrysitis*, *P. gamma*, *P. iota*, *L. conigera*, and *D. cucubali* ♀s were taken by dusking, the latter were ovipositing on *S. inflata*. The ova were laid where the leaf joins the stalk, and not on the flowers as is the case with *D. carpophaga* and *D. capsincola*. The only insects at sugar were *T. orbona*, *T. pronuba*, and *A. didyma* (*oculea*). One *Crocallis elinguaria* was found drying its wings at dusk.

On the 25th, near the Downs, two pairs of *P. icarus* and one pair of *P. rapæ* were observed flying *in cop.*; in all cases the ♂ carried the ♀. *E. tithonus*, *Rumicia phlæas*, *H. flava* (*linea*), *A. corydon*, *P. brassicæ*, *P. gamma* and *E. atomaria* ♀s were also seen, and a white variety of *E. tithonus* was taken in a very worn condition.

On July 26th, at Portslade, I found a number of fullfed larvæ of *D. capsincola* in ripe seedheads of the White Campion (*Lychnis vespertina*), also very small larvæ in unripe seedheads, and a number of ova of the same species on the petals of the flowers. One flower had five ova in a batch, and two flowers which I opened had ova which had been dropped inside. Seeing that this insect has such a long ovipositor, one wonders why most of the ova were laid on the petals, instead of inside the flower, for which purpose it appears so admirably adapted. Most of the ova were freshly laid, white, but others had turned to a delicate pink. It was therefore possible to take the species in all stages at the same time.

On July 28th *E. ochroleuca* was taken at rest on dead knapweed heads and two ♀ *Melanargia galathea*, rather worn, were seen. Just before dusk *Triphæna interjecta* were very plentiful around bramble and other bushes, flying madly about, probably searching for freshly emerged ♀s after the manner of *M. rubi*. Soon after, *L. conigera* came to flowers of the large knapweed, where it was shortly after joined by *L. pallens*, *A. didyma* (*oculea*), *P. gamma* and two *Gonoptera libatrix*. Four more *E. ochroleuca* were also taken, but a thunderstorm coming up from the sea I was obliged to retreat. The afternoon and evening had been very still and oppressively hot, which appeared to make insects very lively.

On the 29th larvæ of *D. conspersa* were taken from the seedheads of *S. inflata*, and *Hecatera serena* larvæ were found feeding on flower heads of Hawksbeard *Crepis virens*.

On July 31st ova, small larvæ and half grown larvæ of *D. carpophaga*, were taken from flowers of *Silene maritima*, also one full fed larva spun up for pupation, and one pupa. The imago was netted after dark, so that this species was taken in all stages in one day. We had a good time with *E. ochroleuca*, three of us bagging 48 specimens. Other insects taken or seen were *T. interjecta* (common), *T. orbona*, *A. didyma* (*oculea*), *P. festucæ*, *P. gamma* (a pest), *L. pallens*, *Aspilates gilvaria*, *Charæas graminis* and *L. conigera*, the last nearly over.

On August 5th, my visit to Eastbourne came to an end, and on my return home I found that all the *T. aurago* larvæ had now pupated. On the 6th a friend sent me from East Kent eight full-fed *Sphinx ligustri* larvæ, which went to earth at once, a rather early date I think. On the 9th one *Colias edusa* was seen flying on a railway bank near Maidstone, and on the 10th a freshly emerged *Pyrameis atalanta* put in an appearance in my garden at East Dulwich, and two *D. capsincola*

emerged from pupæ of larvæ collected at Eastbourne in July. On August 11th I left for fourteen days at Paignton, S. Devon, where, however, entomology had to take second place, but I managed to get a few insects. On the 12th the second broods of *D. capsincola* and *D. carpophaga* commenced to emerge from pupæ of larvæ collected on 8th July near Croydon, and continued to do so throughout August and September. My first *T. aurago* (New Forest) also emerged, and I took my first *B. muralis* (*glandifera*) in Devon, a nice dark form at rest on a stone bridge. I also saw a freshly emerged *P. atalanta*, one or two *C. argiolus*, and one *B. perla*. On the 15th I discovered a large mass of *S. maritima* overhanging the rocks on the shore. There were still plenty of flowers and buds, and on visiting it again at dusk I netted five *D. cucubali* one *D. capsincola*, and a few *P. gamma*. The two former were all females rather worn and very busy ovipositing. I also found full-fed larvæ of both, some of which were ichneumoned. One larva of *D. cucubali* produced a brood of 15 *M. tristis*, on August 28th, and two others produced 12 and 19 of the same parasite on September 6th. These were bred out and identified for me by Mr. G. T. Lyle, to whom I sent the stung larvæ, and to whom my thanks are due.

Strange to say during the whole of my stay this clump of *S. maritima* did not produce *D. carpophaga* in any stage. On the 16th, however, on a roadside flower of *S. inflata*, I found five ova of *D. carpophaga*, which unfortunately hatched while I was away for a day, and died.

(To be continued.)

The Dauphiné Alps.

By DOUGLAS H. PEARSON, F.E.S.

Before deciding upon a holiday this year in the Dauphiné Alps, I looked up past notes in the *Record*, but could find very little information beyond Mr. Tutt's articles in 1898, and Mr. Rowland-Brown's in 1899, so that the district does not seem to have been overrun by entomologists.

Mr. Rowland Brown very kindly gave me some information about the insects to be found in the Susa valley, and thus armed we left home on June 20th for Grenoble, and thence to Bourg d'Oisans, a pretty spot with a small but comfortable hotel near the station. The weather was not good and the only insects taken were, *Coenonympha arcania*, *Satyrus hermione*, *Lycaena arion*, and *Melitaea didyma*.

In the woods near Puy the beautiful orange lily, *Lilium croceum*, was blooming with other interesting flowers. A very comfortable service of motors has replaced the old diligences in this district, and greatly adds to the pleasure of travelling, although the pace at which they take "hair pin" corners is apt to add to one's stock of grey hairs. On June 26th we motored up the beautiful road to La Grave, where we hoped to take *Erebia neoridas*, *Melitaea deione* and other good things—hopes which were doomed to disappointment as a bitterly cold wind persisted while we were there, and indeed throughout most of our holiday, so that in spite of a blazing sun, insects were very loth to appear. On the ground behind the hotel, we took *C. iphis*, *Erebia*

ceto—a form with very small and obscure markings, ab. *obscura*, *Polyommatus eros*, and *L. arion* ab. *obscura*.

On the way up to the glacier *P. eros* was not uncommon, but close searching failed to produce more than one ♀, which was deep slaty-blue in colour, instead of blackish-brown. After crossing the glacier we ascended a very rough and steep moraine, and here took two *Erebia alecto* ab. *pluto*, and saw others, but the nature of the ground made catching a very difficult matter, and they would not stay to be reasoned with. The flowers in the meadows lower down were wonderful, and *Aquilegia alpina*, *Atragene alpina*, Star of Bethlehem, *Aster alpinus*, and *Campanula thyrsoida* were among the many things noted. The next morning we took the path up to an old chapel, and here found *Klugia spini*, *P. escheri* ♀ and ♂, *Colias edusa*, and *Erebia stygne*.

In the afternoon we motored up to Le Lauteret, but butterflies were conspicuous by their absence, solitary specimens of *Melitaea aurinia* and *Pontia callidice* being the only things seen. Good flowers, such as *Primula graveolens*, *Dianthus neglectus*, *Atragene alpina*, sheets of *Narcissus*, and *Anemone alpina* with blooms three-and-a-half inches across, were to be found close to the hotel, but not finding comfortable accommodation we moved on to Briançon and here found such excellent quarters at the Hôtel Terminus that we were tempted to stay longer than we had intended. On a bare hillside near the Pont de Baldry we had good sport, for *Euchloë euphenoides* were flying, but in such a wind that it required two or three days of hard work to get together half-a-dozen specimens, while two females were taken by watching plants of *Biscutella* on which the larvæ feed. On the same hill-side we met with *Coenonympha dorus* for the first time, both ♂s and ♀s being in good condition, and devoted some time to them. The insect flies very close to the ground and when settled is not easy to see. *Satyrus cordula*, *C. edusa* and *C. hyale* were also flying freely, and *K. spini*, *P. hylas*, *P. eros*, one *Albulina pheretes*, *G. rhamni*, *P. podalirius*, *M. cinxia*, *M. didyma*, *M. dictynna*, *M. phoebe*, *Issoria lathonia* and one ♂ *M. deione* were also taken. On the rocky road beyond the bridge a fine form of *Erebia stygne* was met with, the ♂s with a black ground colour on the underside, and the females with very large and clear markings on the upper side. We also took *C. alciphron* var. *gordius* with rich purple suffusions, *C. dorilis*, *A. niobe*, and saw *M. galathea* in abundance, many tending to the var. *procida*.

On July 3rd we left Briançon at 5 a.m. and motored to Oulx, a lovely run in the fresh morning air, and took train to Susa, upheld by visions of *Libythea celtis*, *Polygonia egea*, *Polyommatus meleager*, and other good things to be taken there. My mind had been somewhat prepared for the Albergo del Sole, which is the only hotel one can stay at, but the half was not told me, and it might be safely affirmed that the bedroom floor had not been swept for at least twelve months, while the waiter had a cheerful method of disposing of corks, dirty napkins, bread, or other sundries which happened to fall, by kicking them under the sideboard. Before lunch I set out through the vineyards to find *P. egea*, but found nothing better than *C. arcania* and *L. alcon*. After lunch the obliging landlord tramped with us in the intense heat to find the Sta. Maria de la Losa road, where *L. celtis* was said to be common, but although one doubtful *P. egea* was seen,

L. celtis could not be turned up, and nothing worthy of record was taken.

The next morning we motored up to Mont Cenis, where we had arranged to stay at the Hôtel de la Poste, and to anyone else proposing to do so, I would give Punch's advice to those about to marry, "don't," as we found it dear, dirty, and uncomfortable, with poor food and worse attendance. The hospice appeared to be better, but it was too late to change our quarters. The country is beautiful, with a very rich flora, and though butterflies were very scarce, we left a place where "only man is vile" with great reluctance. There is most interesting botanical ground close to the hotel, between it and the lake, where pits similar to the Yorkshire "swallow holes" have been formed, which are veritable treasure houses of good things. On the opposite side of the lake we found in the woods the rare *Cortusa matteoli* (which is pink, and not coral red, as shown in Correvon), and I hunted over the marshy ground near the outlet of the lake for *P. amanda*, but without success. The only good thing taken at Mont Cenis was a very fine ab. of *Erebia lappona*, taken on the way to the Lac Clair, where the species was flying freely. The underside of the upperwings shows no trace of the usual ante-marginal patch, but the spots are represented by elongated splashes. The lower wings have no trace of a band, but about where the outer edge of it would be, are a series of splashes like those in the upperwings, producing a strking effect.

On July 8th we walked down from Mont Cenis to Lanslebourg, and on the way took two *M. maturna* var. *wolfensbergeri*, one with curiously bleached lower wings, *P. eros*, *C. iphis*, *G. rhamni*, *E. tyndarus*, *E. epiphron* var. *cassiope*, *Latiorina orbitulus*, *Hirsutina damon*, and *Urbicola comma*. By the way, has there been a special tendency in 1911 towards bleaching? as I took three different species bleached in France, and on my return home took a *Rumicia phlaeas* in my garden with one wing bleached silver like var. *schmidtii*.

The next day we walked to Termignon and back through the woods, taking one *M. maturna* var. *wolfensbergeri*, one *Klugia spini*, *L. arion*, *P. hylas*, *P. escheri*, *Plebeius argus* with brown females, *P. argyrognomon*, *H. damon* in swarms, *M. didyma*, *M. athalia*, *M. parthenie* var. *varia*, *Erebia stygne*, *E. euryale*, and one *Chrysophanus hippothoë* var. *eurybia*.

On July 10th we motored to Modane and stayed there in moderate comfort until the 16th, and as the place does not seem to have been worked much, a list of captures may be of interest. On the south side of the valley one *Aricia donzelii* was taken, *Erebia ligea*, *Brenthis amathusia*, *B. ino*, *Heodes virgaureae* ♂s and one ♀, *M. athalia*, *M. didyma*, *M. phoebe*, *M. parthenie*, *M. deione*, the ♂s hopelessly worn and the ♀s past their best, *Anthocharis simplonia*, *Colias phicomone* (dark) and *C. edusa*. The best ground was across the river, and either following the path to the next village and beyond, or taking the zig-zag path up to the fort. *S. cordula* was in the greatest profusion, and instead of the usual chasing over stony ground, could be netted with the greatest ease as they settled on the Valerian flowers. The males were variable, some with four spots on the upper wings and one or two with a white spot on the lower wings. The ♀s were scarce but were very dark in colour and with large spots. *S. alcyone* was

also plentiful but not so easy to net, and with them what I take to be *S. hermione*, though I am never quite clear as to the distinction between these two species. Near the fort the scarce round-headed thistle, *Echinops ritro* was to be found, and on this and on another thistle were numbers of *A. adippe*. Other captures were *Hipparchia semele, Epinephele lycaon, P. escheri, Aricia medon* (*astrarche*), *Agriades corydon, Hirsutina damon, Plebeius argus, K. spini, Leptosia sinapis, Polygonia c-album*, and one *Parnassius mnemosyne*. On the thyme near the river were very large and fine *Powellia sao* and *L. alciphron* var. *gordius* ♂ s, with very rich purple suffusion, and ♀ s with strong black markings and varying in size from 34mm. to 43mm. One ♀ has the outer row of spots in the lower wings dashed with purple, and two others show this more faintly. Mr. Wheeler does not appear to have noted this form, and I have not met with it from any other locality.

Before leaving Modane I made another attempt to work the Susa valley by taking an early morning train through the tunnel to Meana and walked up the road to the Chapel of St. M. de la Losa in the vain hope of turning up *P. egea* and *L. celtis*. The day was beautiful and the view from the Chapel charming, but none of the desired insects were bagged. Some very finely marked ♀ *Erebia ligea* were taken, one peculiar variegated form of *M. aurelia, E. melampus, P. escheri, Dryas paphia, C. arcania* and other sundries, but these were a poor result for a good day's work. We were pleased with our trip as a whole, but the hotel accommodation leaves something to be desired, when compared with Switzerland, and sanitation is a thing but vaguely understood or quite ignored, in most of the hotels.

The first fortnight in July, 1911, at Digne.

By G. T. BETHUNE-BAKER, F.L.S., F.E.S.

(*Concluded from page 71.*)

Perhaps the most interesting of all my excursions were two days in the Dourbes Mountains and valley, the latter with my friends Dr. Reverdin and Prof. Blachier of Geneva, together with a party of six students who were with them, but of this we will speak later. I was very anxious to get on to the screes of the Dourbes. With this object in view I thought I would get the assistance of Monsieur Cotte, and we took this excursion together. So as not to lose time I obtained the loan of a bicycle, whilst M. Cotte used his, and so starting at 6 a.m. we were at the mountain path almost as soon as the sun was over the ridge. Having deposited our machines in a broken down cottage a little way up the hill, we were soon on our way, and most delightful it was bathed in the early morning sunlight. It was not very long, certainly not after 7 to 7.15 a.m. before we came across a flowery area on the mountain side, and almost immediately I espied *Polyommatus escheri* creeping up to the head of a flower. It was a quite fresh female, and she was soon boxed without any trouble off the stem. The incident put me on the "*qui vive*" with the most happy results, for without using my net at all I was able to bag over a dozen beautiful female *P. escheri*, that had evidently crept up to the heads of the grass or the flower for the sake of the welcome warmth of the sun, for though the sun was well over the mountain tops, the air was still quite fresh. It was specially interesting, however, to note that practically all were

females, only one or two males being seen. Among them I also took one female *A. coridon*. A little later on I took a single *Loweia dorilis* and one *Rumicia phlaeas*, which latter was exceptionally bright for the second generation var. *eleus*. *Coenonympha arcania* was not uncommon, but generally was getting *passé*, and *Adopaea lineola* and *A. flava* (*thaumas*) also occurred. As we ascended, the *Zygaenidae* began to put in an appearance, *Anthrocera hippocrepidis* var. *alpina* being by no means rare. *A. achilleae* also was obtained, seven or eight falling to my net; then *A. rhadamanthus* gave me a chance, and I succeeded in getting quite a nice series of this species, the form var. *grisea* (Oberthur) being the usual form, among which was a good sprinkling of its ab. *cingulata*, but of the type form itself (*rhadamanthus*) I only took three specimens. On the same ground, only lower down, also occurred *Anthrocera* (*Zygaena*) *hilaris*, of which I obtained a nice little lot, six or seven falling to my net. We had to push on now so as to get to the screes, and as we were nearing them a fresh *Anthrocera* (*Zygaena*) turned up, for I caught another red-banded species, which I saw as soon as he was boxed to be *A. sarpedon*, and of this we eventually secured six or eight nice fresh specimens. At last we reached the screes, and ere long an *Erebia* flew rapidly over a little ridge on the other side of a stream in a quite inaccessible position. There it flew from stone to stone, spreading its velvety wings to the sun; of course, it was *E. scipio*, the object of my search, and it might have known the fact from the distance it kept. At last another came by, and it was secured, and by dint of two or three hours' hard grind we secured five, three males and two females. Then we made our way down, adding nothing to our list, until we came to nearly the foot of the hillside, where I succeeded in taking several nice *Hirsutina admetus* var. *ripartii*, another insect new to me here. So ended a delightful day.

Another excursion in the Eaux-Chaudes valley produced the same result as already stated, but in addition a single *Anthrocera* (*Zygaena*) *lavandulae* fell to my net, and an *Adscita* (*Procris*) *ampelophaga* as also a few *Anthrocera* (*Zygaena*) *scabiosae* and a specimen of *A. punctum*. As I was examining a bush of clematis, I saw at rest on one of the leaves a quite unmistakeable *Naclia ancilla*. I had already seen one on La Collette and had attempted to take it, a perfectly simple matter as I thought, but in some mysterious way it eluded me. I was therefore determined to get this, and as I could not get my net below it, I made a rapid hard stroke, obtained plenty of leaves but no *ancilla*. A little later on I saw another again on a clematis leaf, sitting on the upperside, as each of the others had been doing, with folded wings, this time I determined to be safe and put my net below it for an upward stroke, I saw it in the net distinctly, but it got out, how I cannot imagine, it escaped nevertheless, and if ever I felt inclined to use a naughty word it was then. That day I took a large *A. lonicerae* in which the lower wings are almost orange with patches of red, and also flying about the dusty road a single precocious specimen of *Tarucus* (*Raywardia*) *telicanus*, which ought to have been flying in August instead of the first week in July.

My last day was one that I shall long remember, spent up the Dourbes Valley with my Geneva friends as already intimated (Dr. Reverdin, Professor Blachier and the six younger men), and

a very delightful day it was in the brilliant sunshine. Dr. Reverdin, as if years were nothing to him, brim full of spirits, ever ready whether with his net or his repartee, never put out, always jovial, always kind, Professor Blachier equally kind and delightful, only in a quieter way. We made a fairly early start staying in one place or another, taking much the same as I had done before, but in one field on the left of the valley, I saw a moth that I had not seen before, and soon it was boxed turning out to be *Heliothis dipsacea*, differing slightly from the type towards var. *maritima*. Later on another *A. punctum* fell to my lot, and two or three *A. carniolica*, and also another half dozen of *A. hilaris*. Again another field on the same side produced several more *H. admetus* var. *ripartii*, and one or two male *P. escheri*. As the valley became narrower, Prof. Blachier and I being together ahead of the others, saw a most likely spot over the stream on the right of the valley, but we had to go further on to get over and come back to the selected spot, having to climb over two or three low hills of loose slaty shale. At last we reached the desired spot and soon more var. *ripartii* were captured, whilst among the long grass a Phycid was flying fairly commonly. This I found to be *Nephopteryx alpigenella*, Dup. As I continued my ascent, still among the grass, I espied a dark butterfly, evidently not an *Erebia* from its flight, yet equally dark. Naturally I made for it, and had no difficulty in taking it. When in the box I could just trace the faintest markings of *Melanargia galathea*, but I had never seen so extraordinary an aberration. As soon, however, as Professor Blachier saw it, he immediately recognised it as precisely similar to one Dr. Reverdin had taken near Geneva, and which he had called var. *lugens*. This, I suppose, may be considered the *pièce de résistance* for that day. The time having come to retrace our steps, I made my way back over La Collette, and took there another *Polygonia egea*, and also a single specimen of *P. c-album*, by no means so dark as our later specimens often are. The females of *Plebeius argus* (*aegon*) were not infrequent, and I took a nice little series in which the orange marginal border in both wings is very pronounced, especially in the secondaries, where it is very broad indeed. Here also I took three quite fresh females of *Cyaniris semiargus*, whilst two ♂s of *Thymelicus acteon* were boxed both in excellent condition, and two or three more *E. lavatherae*. I should also have recorded that I took here, previously, a few specimens of *Cupido osiris* (*sebrus*), and I omitted to mention that the ♂s of *Heterogynis penella* were very common, flying in the hot sun in the Dourbes valley, whilst of other *Heterocera* I took a single newly emerged ♀ of the cinnabar moth, one *Euclidia glyphica*, and one ♀ of *Plusia ni*. *Malacosoma neustria* was taken at rest, and a single specimen of *Setina irrorella* var. *flavicans* on the wing. My stay at Digne ended with a delightful dinner with my Swiss friends, at which the ready wit and speech of Dr. Reverdin again signalised themselves, leaving behind the impression that the renowned specialist, not only medically but entomologically also—is impervious to all things that tend to care, being at all times in the happiest condition both of mind and body. After dinner it was a great pleasure to have a long talk with both the Professors on many points, and especially on the genitalia of insects, when I learnt that we were all three of one mind on the

preparation of these parts, *viz.*, that they should never be cut and that they should be mounted in profile as the natural and most effectual method of both dealing with and seeing them. Thus ended a most happy sojourn the reminiscence of which will always be a pleasure. The next morning I was off at 5.30 a.m. to meet Mr. A. H. Jones at Mende in the Cevennes, where we hoped to obtain a series of *Hirsutina dolus*.

Nonsense Names.

By T. A. CHAPMAN, M.D., F.E.S., F.Z.S.

As an uncompromising supporter of priority in nomenclature, I realise that a difficult point has been raised by Mr. Kearfott's escapade. I accept the doctrine of priority to this extent, that a name once given stands good, that there must be no correction to it of any sort, and that we must assume it to be good latin. If on the face of it or in view of the derivation given by the author, it appears to be vile or impossible latin, we must make believe that it has some derivation unknown to us that makes it possible. That this view is largely accepted, is proved by the abundance of k. and w. in various specific names. If a name is absurd as meaning, say, a blue butterfly with black spots, we may suppose, if we like, that it is the name of a chieftain somewhere in remote Asia or Polynesia. The point is that any pronounceable combination of letters stands good and unalterable. I would uphold this so far, that if, to one single species in a genus, Mr. Kearfott had chosen to give one of his nonsense names, I should accept and uphold it.

The key to the position seems to me to be in these nonsense names being grouped together in such a way that we are compelled to extend the condition against unpronounceability, and add to it the condition not only that an ordinary man can pronounce the name, but that he can reach the preceding stage of remembering it.

I agree therefore in result with Mr. Meyrick and Mr. Wheeler, but I do not arrive at it by the same route. I absolutely accept a nonsense name, on the ground that, once given, it is no longer nonsense, but means the thing to which it is given. But I cannot accept a series of nonsense (or any other) names whose meanings cannot be remembered, I should equally object to a series of names in one genus, meaning say, first-blue, second-blue, third-blue, and so on to hundredth-blue, no matter how good the latin in which this was expressed. It would be as difficult to remember which two, and which of the two was eleventh-blue and twelfth-blue as to remember which was *bana* and which was *mana*.

COLEOPTERA.

ATHETA EREMITA, RYE, IN THE SOUTH OF ENGLAND.—On March 22nd, 1911, I took a specimen of this insect in Epping Forest, Essex, from sphagnum at the edge of a small pond. On February 18th, 1912, two individuals were secured at Burnham Beeches, Bucks, under identical conditions. This species is common in Scotland. There are, however, but few English records. Fowler gives Northumberland, Manchester, Birmingham, Cannock Chase, Forest of Dean. Mr. Keys has

recorded it from the Plymouth district (*Ent. Mo. Mag.*, 1904) and Mr. Champion from Chobham, in Surrey (Ibid., 1907). In Ireland, according to Johnson and Halbert, it has been found in Donegal, Down, Armagh, and Wicklow—all mountainous districts. It would be of interest to know if the specimens captured in low-lying countries occurred in woods, as mine did.—G. W. NICHOLSON, M.A., M.D., F.E.S., University College Hospital, W.C.

SCIENTIFIC NOTES AND OBSERVATIONS.

OVA AND LARVÆ OF PIERIS NAPI.—Ova of this species hatched on Saturday March 2nd with me, but those of my friend Mr. Littlewood, of Kendal hatched on February 14th, I believe. My larvæ are feeding well on fine grass (*Festuca ovina*). When sitting at rest, their attitude is very sphinx-like, the head being tucked right under. The larva, when walking, is just like a small green Geometer. All my ova hatched within a period of three hours.—H. MALLINSON, Oakland, Windermere. *March 12th.*

NOTES ON COLLECTING, Etc.

COLLECTING IN FROST.—A few months ago I sent to the *Ent. Record* an account of my collecting during a sharp frost, thinking it might be of some use to my brother entomologists. That, however, was in the daytime and in sunlight. I have since had a more vivid experience, the knowledge of which may save someone else coming home empty-handed, as I nearly did. On October 28th, 1911, I went to Earlswood, a few miles from Birmingham, just after mid-day. I noticed how quickly it seemed to be getting cold, but it was no use turning back. The woods were reached about 3 o'clock, and I began to beat along the western edge, where, as a rule, *Oporabia dilutata* is very common and in much variety. The sun was shining, but through a glittering mist, and I only succeeded in knocking out a solitary example. The air had, by this time, become so cold that the insect was too lethargic to fly, and fell on the grass. As it was only a very ordinary form, I left it on the ground. Thinking that it would be better in the wood, I searched for some time, but the result was nil. By this time it was getting dark and I put on the sugar, with the same result as before, and after three turns round my sugar patches I made up my mind to return home, especially as the frost had become so keen that I was glad to keep my hands tight to my lantern. That it was really cold may be assured as 14 degrees of frost were registered during the night. Just as I was leaving the wood I thought I saw something flutter, and after a close search a specimen of *Hibernia aurantiaria* was met with. This suggested searching the twigs. At first the search was unsuccessful, but finally, by working on the leeward side of bushes, etc., and getting down on to the withered and brown grasses, I began to take insects with their wings folded over their backs, so that I could not be quite sure as to species until the next morning. Just before leaving, among the grass, I saw, what for a moment I did not understand, something like a couple of miniature ferns, I soon however found them to be the antennæ of *Himera pennaria*, a

grand form having the strongest bars I have ever seen in this species. In the morning I found that I had fifteen *Hibernia defoliaria*, all small, well-marked forms, but differing from the former species, in that six were more or less crippled and two slightly cut, no doubt evidence of a less hardy type. The surprise to me was that on such a bitterly cold night, they were not all cripples.—J. T. Fountain, 109, Darwin Street, Birmingham. *February*, 1912.

The Riffelalp and Chamonix in July, 1911.—The following is a record of some of my captures of butterflies around the Riffelalp during the week beginning on July 15th. The best ground was above the path leading to the Findelen Glacier, and the walk from the Riffelalp to the Schwartzee was also good. The weather was gloriously fine. Species:—*Pieris napi* var. *bryoniae*, *Pontia callidice*, *Polyommatus eros*, *Latiorina orbitulus*, *Vacciniina optilete*, *Aricia eumedon*, *Plebeius argyrognomon*, *Melitaea aurinia* var. *merope*, *M. cynthia*, *Colias phicomone*, *C. palaeno*, *Erebia lappona* ab. *sthennyo*, *E. tyndarus*, *E. mnestra*, *E. melampus*, *E. pronoë*, *Coenonympha satyrion*, *Pamphila comma*, and *Brenthis pales* and var. *napaea*.

On July 22nd I started a week's collecting at Chamonix. The best results were obtained up the Brevent. The following are the Erebias caught:—*Erebia melampus*, *E. gorge*, *E. stygne*, *E. goante*, *E. euryale* and ab. *euryaloides*, and *E. epiphron*.—E. E. Bentall, F.E.S., The Towers, Heybridge, Essex.

CURRENT NOTES AND SHORT NOTICES.

Another portion of the Collections of the late Mr. J. W. Tutt will be sold at Stevens' Auction Rooms on Tuesday, April 23rd. The first cabinet contains the remaining species of the Geometers, including long and varied series of the genus *Cidaria*, the genus *Peronea*, and several drawers of the British Plumes. A second cabinet contains the whole of the Tortrices and Tineina, many of the sets being in capital condition, having been carefully gone over and added to quite recently. A series of *Tortrix teucriana* (see *Ent. Record*, I., 31) is included. The British Crambi, Phycids, etc., are in the same cabinet and are also in excellent condition. Another cabinet contains sets of captures from particular localities in the Alps, etc., selected from the various collecting boxes of the late Mr. Tutt, each containing many useful series of butterflies, with several drawers of Geometers, etc.

The Entomological Club held another of its pleasant meetings, at "Wellfield," Lingard's Road, Lewisham, on March 12th, with Mr. R. Adkin, F.E.S., as host. After the kindly welcome from Mrs. and Miss Adkin, tea was taken, and subsequently a considerable time was spent in our genial host's study enjoying his very complete and beautifully arranged collections, turning over the leaves of his valuable entomological books, and discussing varied and knotty points which have recently cropped up in our cult. Later on the guests partook of supper. Among those present were Messrs. R. Adkin, G. C. Champion, J. E. Collin, H. St. J. K. Donisthorpe, A. E. Gibbs, A. H. Jones, Rev. F. D. Morice, A. Sich, R. South, W. E. Sharp, J. R. le B. Tomlin, Hy. J. Turner, and Rev. G. Wheeler.

SOCIETIES.

The South London Entomological and Natural History Society.—*January 11th*, 1912.—Messrs. C. J. Gahan, M.A., F.E.S.,

of the British Museum (N.H.) and Mr. N. S. Sennett, F.E.S., of South Kensington, were elected members.—INCREASE OF VARIATION.—Mr. A. W. Buckstone exhibited series of *Hybernia defoliaria* from several localities, and stated that variation had considerably increased in the last 30 years, and that around London the type form was much less frequent. PROTECTIVE RESEMBLANCE IN A TREE-CRICKET.—Mr. H. Moore, a huge Tree-cricket, *Eumegalodon blanchardi*, from Borneo, whose tegmina resemble leaves. FAUNA OF A LONDON GARDEN.—Mr. R. Adkin gave additional notes on the "Lepidoptera of a London Garden," exhibiting *Plusia moneta*, *Monopis rusticella*, *Gracilaria syringella*, *Argyresthia gœdartella*, and *Gelechia malvella*. ABERRATION OF P. ATALANTA.—Mr. A. E. Gibbs, an aberration of *Pyrameis atalanta* bred from Vizzavona, Corsica, in which the diagonal red bands of the forewings and the marginal band of the hindwings are more or less pink, and some areas very much paler than usual. VARIATION IN A. TRIFOLII.—Mr. Blenkarn, five specimens of *Anthrocera trifolii* var. *confluens*, from Withycombe and Horsley, and various species of Coleoptera, including *Bledius secerdendus*, recently announced as new to Britain by Dr. Joy. GLOWWORM LARVÆ.—Mr. H. Main, larvæ of the Glow-worm reared from eggs and also a larva of *Ocypus olens*. REPORTS OF OUTDOOR MEETINGS.—The Reports of the Society's Field Meetings during the past year were communicated by Messrs. Edwards, Gibbs, Kaye, Priske, Tonge and Turner. ANNUAL GENERAL MEETING.—*January 25th*, 1912.—The Reports of the Council and Officers for the past year were received and adopted. The Council and Officers for the ensuing year, were elected (see page 45). Mr. W. J. Kaye read his annual address. Votes of thanks were passed to the Treasurer, Secretaries, and other officers.—ORDINARY MEETING.—Mr. A. E. Tonge, F.E.S., President, took the chair.—Messrs. A. E. Morris, of Upper Norwood, and Mr. F. W. Frohawk, of Wallington, were elected members. LEPISMA SACCHARINA.—Mr. Edwards exhibited the so called "silver fish" *Lepisma saccharina*. THE "NARCISSUS-FLY" PEST.—Mr. Main, a narcissus bulb, sent him by Mr. Winkworth, which had been attacked by the larva of the Dipteron, *Merodon equestris*, a fly often extremely injurious in nurseries. CURIOUS METHOD OF PACKING INSECTS.—Mr. Moore, a number of butterflies from the interior of Borneo, including *Papilio eremon* var., *P. itamputi*, *Terias gradiens*, *Hestia iogani* var. *virgo*, *Danisepa lowii*, *Terias tilaha*. They were sent home to him packed in fragments of the flannel shirt of his friend, who collected them, a successful method of combating the excessive superabundance of moisture in the atmosphere of the locality.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY.—*January 15th*.—A large number of interesting lantern slides were exhibited by Dr. Cotton, Dr. Tinne and Mr. O. Whittaker. Dr. Tinne's slides included many beautiful coloured examples taken by the Lumière and other colour processes. VARIATION IN P. CHI.—Mr. Mansbridge exhibited a series of *Polia chi* shewing the usual range of melanic variation from the Huddersfield district, and also, on behalf of Mr. A. W. Boyd, a case of micro-lepidoptera from various localities in Cheshire, among them being *Mixodia schulziana*, *Sciaphila hybridana*, *Sophronia parenthesella*, *Chelaria hübnerella*, *Argyresthia pygmaeella*, *Peronea comariana*, etc.

THE ENTOMOLOGICAL SOCIETY OF LONDON.—*December 6th*, 1911.—The following gentlemen were elected Fellows of the Society:—Dr. Beckwith Whitehouse, 52, Newhall Street, Birmingham; Messrs. F.

W. Edwards, Kingswear, Cornwall Road, Harrow; Douglas Pearson, Chilwell House, Chilwell, Notts; B. H. Smith, B.A., Edgehill, Warlingham, Surrey; C. F. M. Swynnerton, Mt. Chirinda, Melsetter, S. Rhodesia. A PHASMID, NEW TO SCIENCE.—Mr. C. J. Gahan exhibited an insect recently brought to the British Museum, and recognized by him as belonging to *Prisopus*, a remarkable and specially interesting genus of *Phasmidae*. The one now exhibited was new, and he proposed to name it *Prisopus fisheri* in honour of its discoverer. LEUCANIA PALLENS AND L. FAVICOLOR.—Mr. South exhibited a drawer of Leucanid moths captured and reared by the Rev. W. P. Waller in the Woodbridge district of Suffolk. He observed that seeing that Mr. Waller had reared *favicolor* from eggs laid by a *pallens*-like female, and obtained *pallens* from the ova of a female *favicolor*, the obvious inference was that there was cross-pairing in each case; he understood that *favicolor* cannot be separated from *pallens* by any difference in the genitalia, and was informed that cross-pairings of *pallens* and *favicolor* are not uncommon in the habitat of the latter. He was, therefore, inclined to suppose that *favicolor* is a salt-marsh development of *pallens*. A COLEOPTERON NEW TO BRITAIN.—Mr. Donisthorpe exhibited a specimen of *Eryx fairmairei*, Reiche, taken by him in Sherwood Forest on July 11th, 1908. He also showed a French specimen of the same species, and examples of *Eryx atra*, F., the other known British species, for comparison. RHOPALOCERA FROM LAPLAND.—Mr. W. G. Sheldon showed a collection of Rhopalocera made by him in Jemtland and Swedish Lapland in June and July, 1911. LUPERINA NICKERLII AND ALLIES.—Mr. Henry J. Turner exhibited a large number of specimens of *Luperina nickerlii*, of which the British form or race has been hitherto known as *Luperina guenéei*, together with series of other races from the Continent. EREBIA ÆTHIOPS.—Mr. Turner also exhibited a long series of *Erebia aethiops* from many continental localities and also from Aviemore, Scotland. CONTRASTS IN COLOURING BETWEEN CERTAIN SPECIES OF BUTTERFLIES FROM THE LAGOS DISTRICT AND THEIR GEOGRAPHICAL RACES AT ENTEBBE. —Prof. Poulton exhibited a series of specimens tending to refute the view, again recently advanced, that changes of colour and pattern in allied forms are due to climate, and especially to moisture. PSEUDACRÆAS OF THE HOBLEYI GROUP ON DAMBA ISLAND AS COMPARED WITH THOSE FROM THE ENTEBBE DISTRICT.—Prof. Poulton exhibited a set of the mimetic Pseudacræas and their models collected by Mr. C. A. Wiggins in the neighbourhood of Entebbe, which contrasted remarkably with a set of 17 Pseudacræas collected by Dr. G. D. H. Carpenter on Damba Island, on the Equator, in the Victoria Nyanza, about 20 miles south-east of Entebbe. OBSERVATION ON THE COURTSHIP OF PLANEMA ALCINOË, FELD.—Prof. Poulton exhibited four males and one female of *Planema alcinoë*, captured August 10th, 1911, in the forest one mile east of Oni, near Lagos, by Mr. W. A. Lamborn, "in a confused mass." THE COCOONS AND EGGS OF THE BOMBYCID MOTH, NORASUMA KOLGA, DRUCE.—Prof. Poulton exhibited the cocoon of *N. kolga* together with the moth which had emerged from it. The compact cocoon itself was reddish, with an outer imperfect covering of yellow silk. In some cocoons, including the one exhibited, the silk of this loose and open network formed dense little masses here and there which, being bright yellow in colour, much resembled the cocoons of

Braconid parasites. Prof. Poulton said that he had also been shown, by Mr. J. H. Durrant, similar spherical bodies scattered over the cocoon of the Tineid moth *Marmara salictella*. THE FOOD OF THE CARNIVOROUS LYCÆNID LARVA, SPALGIS LEMOLEA, H. H. DRUCE (S. SIGNATA, HOLLAND).—Prof. Poulton exhibited specimens and gave an account of observations sent by Mr. Lamborn, which threw further light on the letter written January, 1891, by the Rev. A. C. Good, Ph.D., from West Africa, from which Dr. W. J. Holland had inferred that the larvæ of *S. lemolea* are aphidivorous; extracts from Mr. Lamborn's letters, together with an investigation of his material, indicate that their food consists of *Coccidae*. BRAZILIAN SYNTOMIDS.—Mr. W. J. Kaye exhibited a drawer full of *Syntomidae* that had been collected by himself in south Brazil in the early part of 1910. The following papers were read:—"On the *Nictitans* Group of the genus *Hydroecia*, Gn.," by the Rev. C. R. N. Burrows, and "On the Dates of the Publications of the Entomological Society," by the Rev. G. Wheeler, M.A., F.Z.S.

REVIEWS AND NOTICES OF BOOKS.

SOCIAL LIFE IN THE INSECT WORLD.—By J. H. Fabre (Illustrated). Price 10s. 6d. Published by T. Fisher Unwin, 1, Adelphi Terrace, London, W.C.

To those acquainted with Mons. J. H. Fabre's previous writings there is no need to recommend this, his latest achievement. In other words "good wine needs no bush." Mons. Fabre has the singular felicity of being able to write about his observations with literary skill combined with scientific accuracy. His experiments (*vide* Chaps. 14 and 15) show that he has lost none of his skill as an investigator of a high order, at once tenacious of purpose and fertile in resource. This work is simply a confirmation of his well-known aptitude. Where Réaumur failed, Fabre succeeded (*vide* pp. 55 *et seq.*). We can conceive of no book better calculated to convert a mere collector into a real student of nature. All entomologists will, we hope and expect, read the book with delight and profit. Mons. Fabre refuses to confine his observations within the ring fence of a single Order of insects. He prefers to roam the Insect World at large. Hence he gives us many new and interesting records relating to The Mantis (*Mantis religiosa*, Linn.), The Field Cricket, The Sisyphus Beetle, The Great Peacock or Emperor Moth, The Oak Eggar, The Pine Chafer (*Melolontha fullo*, Linn.), etc.

It is to be regretted that the translator has failed to differentiate a "moth" from a "butterfly," and further renders the "Golden Carabus" as the "Golden Scarabeus." Whilst these lapses do not detract from the absorbing interest of the book, they tend to give the reader purposeless mental shocks.—(H.E.P.)

BUTTERFLY-HUNTING IN MANY LANDS.—By Geo. B. Longstaff, M.A., M.D., Oxon; F.R.C.P., F.S.A., F.G.S., late Vice-Pres. Entomological Society of London, etc. (with 16 plates, 7 coloured). Price 21s. Published by Longmans, Green and Co., 39, Paternoster Row, London.

The author in his Preface says his work appeals only to entomologists. We opine that he will find it appeal very strongly.

All entomologists are of necessity travellers. But among his peers Dr. Longstaff is *facile princeps*, inasmuch as there are none that we

know of who have collected and observed insects in *all* parts of the world, with possibly the sole exception of Commander J. J. Walker, R.N., F.E.S. Certainly nobody has given the entomological world the results of his observations spread over so many years and relating to so many countries.

The book, for the most part, consists of the contents of the author's notebooks, interspersed with the relation of such episodes as came under his notice from time to time. It is altogether delightful reading from cover to cover. An account of a trip to Rannoch is told so simply, yet vividly, that it will recall happy memories to the reader who has likewise visited this famous "ground."

After taking us from Wimbledon and Rannoch to Australia and New Zealand—meantime treating of India, China, Japan, Algeria, South Africa, South America, etc.—the author (*vide* Chap. X.) ceases to become the interesting traveller, and shows that he is no mean student of various scientific problems. Here are discussed such items as "Scents," Tenacity of Life, Experiments of Palatability, Successful Mimicry, Selection of Coloured Resting Places, Heliotropism, etc.

The authentic details therein noted are rightly placed on permanent record, as it is not too much to hope that in the future a new Darwin will arise and utilise them by giving us inferences of lasting value.

Finally our best thanks are due to Dr. Longstaff—or shall we say to his friend the well-known student Dr. E. B. Poulton, F.R.S.?—for placing before us excellent translations (by E. A. Elliott, F.Z.S., F.E.S.) of a series of papers by Dr. Fritz Müller dealing with the Scent-organs of Lepidoptera. It should be added that these important papers are accompanied by excellent plates illustrating the points dealt with.—(ID.)

REPORT OF THE AGRICULTURAL RESEARCH INSTITUTE AND COLLEGE, PUSA, 1910-11. Superintendent Government Printing, Calcutta, India.

A perusual of this Government publication extending to 102 pp. of closely printed matter (quarto) makes one proud of his fellow countrymen. From the Director's (E. J. Butler, M.B., F.L.S.) Report we note that the Institute is organised in seven scientific sections: Agricultural, Chemical, Botanical, Mycological, Entomological, Second Entomological, and Bacteriological, and that the work for the year was executed by only eight European officers of the Pusa staff, and of these two were engaged in Baluchistan developing the fruit industry of that province.

To readers of *The Record*, etc., the chief interest will centre round the Report of the Imperial Entomologist, known to us at home as T. Bainbrigge Fletcher, R.N., F.E.S., F.L.S. He says that having in view the enormous areas dealt with and the general ignorance of the cultivating classes regarding insect pests and their control, the number of assistants employed in Entomological work in the Provincial Agricultural Departments is quite inadequate. Reference is made to the steady progress made in investigating the insect-pests of crops in Madras, to the experiments against Termites at Hoshangabad, to the work against Potato Moth and Cane Grasshopper, and also to the Rice Grasshopper and the Semiaquatic Rice Caterpillar. Altogether it is very interesting to read of the never wearying, unostentatious, yet forceful and fruitful work of our confrères in other lands.—(ID.)

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Photo. F. N. Clark.

Hydrœcia burrowsi × 12½. H. paludis (*asian*) × 12½.

On Hydroecia burrowsi, n. sp. (*With Plate.*)

By T. A. CHAPMAN, M.D.

Mr. Burrows has recently given us, in the *Transactions of the Entomological Society*,* a complete account of his researches so far in the *nictitans* group of the genus *Hydroecia*. He had at various times told us something about them before, but now we have the results of his work clearly set forth.

I had the pleasure of supplying him with various examples of this group from a good many localities, and amongst some Asiatic examples he found a species he had not previously met with, and which he has named *asiatica*: of this he only found one example. I have since obtained Asiatic material from Staudinger and others, and amongst these some eight or ten more *asiatica* turned up, all of them labelled Juldus Kuldscha, a locality different from that of the first specimen, but no example was found amongst "*nictitans*" from any other locality. The great mass of the specimens belonged to one species which I will call *paludis*, though Mr. Burrows has not yet condescended to name it. I thus obviously run the risks that befal those that "rush in where, etc." I have no authority to quote Mr. Burrows on this matter, but I believe he is still investigating the relations (if any) between *lucens* and *paludis* in Britain, and till he has satisfied himself on various points, will not commit himself as to non-British forms. My own opinion, which must be taken as very provisional, is that these two forms are distinct species in Britain, but that these Asiatic specimens are not too distinctly the one or the other. However, I do not profess to have, nor desire to express, any decided opinion as to these being *paludis*, I only want provisionally to use a name for these forms, my only present concern is with *H. burrowsi*.

The genitalia of all the forms differentiated by Mr. Burrows are most abundantly distinct, *asiatica* might indeed belong to a different genus, and only *lucens* and *paludis* at all closely resemble each other.

Amongst those *paludis* received from Staudinger was one very large specimen from Vladivostock, which, on examination of the appendages, turns out to be a new and very distinct form. Not only is the specimen itself large, but the appendages also are very large and bold. Unfortunately there is only the one specimen. Another, looking very like it and about as large, from Manchuria, is only *paludis*.

I propose to gratify my regard for Mr. Burrows and to honour him for his work on this group by naming this fine form *burrowsi*.

Hydroecia burrowsi, n.sp. The specimen is very large, 39mm. amongst all the Asiatic specimens (*paludis*) few approach it, one from Manchuria 37mm., and one or two labelled Amur nearly the same, but the majority are only 32-34 mm. in expanse. In colour it is a deep rich red-brown, with brighter red stigmata, a coloration quite the same as several of the *paludis*. We may expect that a series would shew variations of colour similar to those in the other species of this group of the genus *Hydroecia*.

In markings there is one difference from the *paludis*. Beyond the stigmata are two nearly parallel lines, and the space between the outer one and the margin is divided into two by an angulated line. In

*1911, p. 738.

burrowsi this line is proportionally nearer the outer of the two lines referred to, than in any specimen of *paludis*.

The hind-wings in *paludis* vary very much, sometimes of a nearly uniform tint, usually shading to a good deal darker towards the margin. Sometimes this darker margin is marked off from the paler base, forming a pale wing with a broad darker marginal band, and not seldom the pale base has a darker line parallel to the inner edge of the dark margin. This is the character of the hind-wings in *burrowsi*, in which this inner line and the inner edge of the marginal band are more definitely parallel to each other throughout than in any of the specimens of *paludis*, and the two tints do not shade into each other. I think I have seen this clear definition however in other species of this group of *Hydræcia*. The photograph of the specimen by Mr. Tonge happens to show these two points, the marginal lines of the forewings, and the clear definition in the hind-wings, although it shows nothing of the centre of the forewings, where however I detect no difference from the usual type in the group. Those differences that I have described are so slight, that they may be merely individual to this specimen, and I am quite prepared to be told that they hardly exist.



Photo. A. E. Tonge.

HYDRŒCIA BURROWSI × 2.

NOTE.—The body of the specimen having been mounted, one was borrowed from a *paludis* for the purpose of the photograph. To this extent the photograph is deceptive.

The genitalia are, however, extremely distinct, they are of the same type as *paludis*, but besides remarkable structural differences, are much larger, the length of the clasps, for instance, being as 5mm. to 4mm. They may be compared in Figs. 1 and 2 on Plate III.

The most striking difference is the great length of the transverse process of the harpes (in the figure the inner branch is fractured on the left side) with its long sweeping curve and sharp point. The anal angle of the cucullus is produced into a sharp point, as compared with the rounded angle in the other species. The clavus is larger than in *paludis*, and is thicker just before the apex, and then ends by rapidly

narrowing. This is to some extent (in the photograph) due to the orientation of the process. The cornuti in the larger ædœagus are smaller than those of *paludis*, except that they include one very large broad spine very different from the rest.

In the plate the upper figure is *burrowsi*, the lower, one of the Asiatic *paludis* from Sajan, for comparison. On comparing these figures with those in Mr. Burrow's paper in the *Trans. Ent. Soc.* it must be remembered that the ædœagus is present in these, but removed in the preparations from which Mr. Burrows' photographs are taken. My photographs are by Mr. F. N. Clark.

I propose to place the specimen in the British Museum.

Seasonal notes on Tineina.

By ALFRED SICH, F.E.S.

Being absent from England till July 4th, in 1911, I missed all the delightful species of Micro-lepidoptera which one sees, or hopes to see, in the spring and early summer. I arrived home just in time to secure two imagines of *Coleophora potentillae*, which had emerged in one of my breeding pots. I had found the larvæ on *Potentilla tormentilla*, near Richmond, in July, 1910. In another pot one *C. therinella* had emerged. The larva of this was taken off *Cnicus arvensis*, in Chiswick, the previous autumn. On the other hand, the eleven larvæ of *C. niveicostella*, from eggs laid on thyme by a female from Eastbourne (August 14th, 1910), had unfortunately all perished owing to the drying up of the plant. July 15th was spent at Clandon in the pleasant company of other members of the South London Society. The junipers yielded *Argyresthia abdominalis*, as they did on the same date in 1905. *Swammerdammia caesiella* occurred amongst hawthorn, and it pleased me to find larvæ of *Antispila pfeifferella* mining in the leaves of dogwood. The holes they had made in the leaves when they cut out their cases were quite conspicuous, as also were the large brownish mines, which still contained larvæ. On an oak trunk at Richmond, July 19th, I found a moth I could not recognise. It was *Psoricoptera gibbosella*. So the next day I revisited the locality and came back with four more. Four days later, also at Richmand, when searching the trunks of some old hawthorns, I found two specimens of *Cerostoma scabrella*. Of this insect, one might say that it is exceedingly inconspicuous until one does see it. On the same afternoon, among weeds, in a sunny spot, one quite fresh *Lita maculiferella* was taken. I searched for further examples, but in vain. Perhaps the species was not fully out. During this month I found *Tinea corticella* less scarce than in other years. It rests just like *T. cloacella* on the bark of trees. On August 8th I took a little white moth which did not fly quite like *Elachista argentella*. When caught its large eyecaps proved it to be an *Opostega*, and it was *salaciella*. From time to time I take solitary individuals of this species without being able to get any clue to the larval habits. It would be of very great interest to obtain the larva and pupa; the latter would possess very large pupal eyecaps, and might thus be recognised if found accidentally. Towards the end of August *Stenolechia gemmella* was common hiding in the crevices of the bark of oaks. In September I took two mines of *Lyonetia clerkella* off

birch; they both yielded the dark fuscous form. Several cases of *Coleophora alticolella* were gathered from rush heads; both *C. glaucicolella* and *C. caespititiella* occur on the same ground at Richmond.

In August *Lithocolletis comparella* haunted the trunks of abele poplars at Barnes in some numbers. It is very common all over the district in most years, but appears to be somewhat local generally. The larva mines in all the common kinds of poplar. From honeysuckle on Putney Heath I bred *Lithocolletis trifasciella* in late September, and was much interested to find mines on *Salix repens* about the same time, which I hoped would produce *L. quinqueguttella*. None emerged in the autumn, but two specimens of this species have already been bred from these mines. At Ealing at the end of July the larva of *Nepticula plagicolella* was common in plum leaves. The following species came into the house at Chiswick:—Two *Sitotroga cerealella*, *Tinea pallescentella*, and a dark form of *Gracilaria stigmatella*. My last catch of the year was a nice specimen of *Oinophila v-flavum*, on November 17th, on a window frame.

The Rhone Valley and Italian Lakes in Spring.

By A. S. TETLEY, M.A., F.E.S.

I spent a fortnight in May, 1910, and another in June 1911, in the Rhone Valley and on the south side of the Simplon, and possibly a few notes on the butterflies observed may be interesting, even for such well-worked ground, as my visits were rather earlier than those of most of our English butterfly hunters in Switzerland. My headquarters in 1910 were St. Maurice in the Valais and Baveno on Lake Maggiore, and Bex in 1911, with a short tour to Iselle and back over the Pass. We had good weather in 1910, but everything seemed backward, and butterflies very scarce south of the Alps. Last year we encountered the one bad patch of weather in the summer, and except in a few places found butterflies few in number compared even with the preceding year.

In 1910, from May 15th to 29th we had only two wet days. *Erebia medusa* was one of the few common butterflies near St. Maurice and at St. Triphon, all more or less typical. *Cupido osiris* (*sebrus*) was much scarcer at the latter place than in May, 1907. In fact the only insect at all common there was *Anthrocera achilleae*. A dozen *Melitaea parthenie* were all I took, and this meant practically all I saw, as I wanted them for my friends. At Martigny, on May 28th, there were a good number of common butterflies, but no Melitaeas except *M. cinxia*. *Erebia evias* was under the cliffs, the only other noteworthy captures being single specimens of *Parnassius mnemosyne* and *Pieris napi* var. *bryoniae*.

We were at Baveno from May 17th to 22nd. The woods and meadows on the slopes of Monte Matterone were full of spring flowers, but almost devoid of insect life. We were told that the cold weather had come to an end only a day or two before we arrived. It was disheartening to traverse the most attractive localities and see nothing but odd specimens of *Hesperia malvae*, *Hamearis* (*Nemeobius*) *lucina*, *Coenonympha pamphilus* and the like. On May 19th and 21st we crossed the lake to Laveno and found butterflies commoner than at Baveno. The most noteworthy were *Melitaea phoebe* and *Scolitantides orion*. Of the former I took nine males. They were a much duller insect than the

forms I have taken in the Rhone Valley and at Vernet, with nearly unicolorous ground colour, and the black markings not so well defined. They are identical with some I took near Lugano in August, 1905. I caught them nearly all at flowers of *Trifolium pratense*. The *S. orion* were small and with not much blue on the wing bases; they looked very black on the wing and did not seem to visit flowers.

On our return to the Rhone Valley we paid a visit to Glion and Sonzier on May 26th, and found *Melitaea aurinia* (*artemis*) abundant near the latter place and not so worn as on the same date in 1907. I should add that we crossed the Simplon on May 22nd and 23rd from Varzo to Brig, and except a few common butterflies between Varzo and Gondo saw nothing lepidopterous all the way. The snow was very deep for two miles or so on each side of the summit. Bérisal was open only to painters and carpenters, and on our downward tramp it snowed and rained all the day.

In 1911 we were at Bex from June 12th to 24th, when incessant rain at last drove us homewards. A few notes on some of the more interesting butterflies will be all I need say about so well-known a district. *Melanargia galathea* was extraordinarily abundant. At St. Triphon, in the meadows on each side of the Gryonne, *Coenonympha iphis* was nearly as common, males worn, females in fine order. There were numerous species besides, but none really plentiful there. *Pararge achine* occurred at Vernayaz, between Aigle and Sepey, at St. Triphon and Bex, and commonly near Ollon, where I knocked it out of trees during a heavy thunderstorm. It was perfectly fresh. On June 20th I found *Chattendenia* (*Thecla*) *w-album* on the banks of the Gryonne. *Aricia eumedon* swarmed in the meadows below Villars-sur-Bex. The males were going over, but one could take any number of both sexes from the geraniums whose purple flowers were a conspicuous feature on all the slopes above Bex. A few *Erebia oeme* were the only other butterfly of note there. On June 18th, between Vernayaz and Martigny, I saw or took 54 species, including every one of the butterflies to be found there in mid-June; yet I do not think they were so common as in June, 1908. Two *Heodes virgaureae* ♂ are perhaps worth recording for the date. On June 21st-23rd we crossed the Simplon from Iselle to Brig. Again I found *Parnassius mnemosyne* below Gondo, very worn. *Loweia alciphron* var. *gordius* was just out, and *Melitaea phoebe* and *M. athalia* gave some fine forms.

At Bérisal there were plenty of *Parnassius mnemosyne*, and one or two *Colias phicomone*, but little else. *Erebia evias* and *Pararge hiera* were worn out. Between there and Brig *Plebeius argus* (*aegon*) was in thousands. At the second Refuge *Plebeius zephyrus* var. *lycidas* was scarce and worn, while *Polyommatus escheri*, equally scarce, was very fresh. That butterfly captured on the afternoon of the 23rd proved to be the last we were to take in Switzerland in 1911.

I append a list of butterflies taken at Laveno on Lake Maggiore on May 19th and 21st, 1910:—

Hesperia alveus, H. malvae, Nisoniades tages, Augiades sylvanus, Loweia dorilis, Rumicia phlaeas, Cupido minimus, Agriades thetis, Polyommatus icarus, Aricia medon (*astrarche*), *Scolitantides orion, Callophrys rubi, Hamearis lucina, Iphiclides podalirius, Pieris brassicae, P. napi, P. rapae, Euchloë cardamines, Leptosia sinapis, Colias hyale, Gonepteryx rhamni, Brenthis dia, Melitaea didyma, M. phoebe, M. athalia, Vanessa io,*

Euvanessa antiopa, *Pararge egeria*, *P. megaera*, and *Coenonympha pamphilus*.

Retrospect of a Coleopterist for 1911.

By Prof. T. HUDSON BEARE, B.Sc., F.R.S.E., F.E.S.

Many of the additions to our list, which I have to record this year, were introduced in the course of lengthy articles dealing with certain difficult groups of our coleopterous fauna. I propose, therefore, in the first instance to give a short list of all the new species and varieties brought forward during 1911, and, later on, to refer more fully to some of these additions when I discuss the notes in which they were first brought forward.

New Species.—(1) *Haliplus fulvicollis*, Er., introduced by Mr. J. Edwards (*Ent. Mo. Mag.*, vol. xlvii., p. 1).

(2) *Haliplus heydeni*, Wehncke, introduced by Mr. J. Edwards (*loc. cit.*)

(3) *Haliplus wehnckei*, Gerh., introduced by Mr. J. Edwards (*loc. cit.*)

(4) *Haliplus nomax*, sp. n., described by Mr. Balfour Browne (*loc. cit.*, p. 153). This insect occurs throughout Great Britain and Ireland, in lakes, canals, and large drains of clear water. It belongs to the difficult *ruficollis* group.

(5) *Homalota* (*Atheta*) *inhabilis*, Kraatz., (*loc. cit.*, p. 111). The insect introduced by Dr. Joy as *Epipeda nigricans*, Thoms. (*loc. cit.*, vol. xlv., p. 268), turns out to be the above insect, the original identification having been incorrect.

(6) *Homalota* (*Atheta*) *liliputana*, Bris., introduced by Dr. Cameron (*loc cit.*, p. 223) on five specimens taken in small carcases near Brockenhurst, in May and June, 1911. Dr. Cameron gives a table for separating this insect from its allies.

(7) *Homalota muiri*, sp. n., described by Dr. Sharp (*loc. cit.*, p. 227) on specimens taken in shingle in a stream in the New Forest. It is said to be closely allied to *longula*, Heer.

(8) *Tachyporus fasciatus*, sp. n., described by Dr. Nicholson (*Ent. Record*, vol. xxiii., p. 24) on two specimens taken at Wicken Fen in 1910, in sedge refuse. In size and shape it resembles most closely *T. solutus*, Er.

(9) *Quedius hammianus*, sp. n., described by Dr. Sharp (*Ent. Mo. Mag.*, vol. xlvii., p. 57). This is apparently a coast insect, and has hitherto been confused with *Q. molochinus*, Gr. It has been taken at Deal, Lymington, Sheppy, etc.

(10) *Bledius annae*, sp. n., described by Dr. Sharp (*loc. cit.*, p. 31) on specimens taken on the banks of the river Nith, near Thornhill, as far back as 1867, and also in 1910.

(11) *Bledius filipes*, sp. n., described by Dr. Sharp (*loc. cit.*, p. 32) on specimens taken by Mr. Elliman, near Cromer, in 1897.

(12) *Bledius terebrans*, Schiödte, introduced by Dr. Sharp (*loc. cit.*, p. 33) on specimens taken near Carstairs, and on the banks of the Truim, near Newtonmore.

(13) *Bledius hinnulus*, Er. (=*diota*, Schiödte), introduced by Dr. Sharp (*loc. cit.*, p. 34) on specimens taken at Wells, Norfolk, as far back as 1867. It has been taken more recently in the same locality

by Dr. Joy, Mr. Donisthorpe, and the author. It was confused with *bicornis*, Germ., but is abundantly distinct from that species.

(14) *Bledius laetior*, Muls. and Rey, introduced by Dr. Sharp on specimens found at Scarborough and at Hammersmith (*loc. cit.*, p. 58). It is superficially similar to *fracticornis*, Er.

(15) *Bledius secerdendus*, sp. n., described by Dr. Joy (*loc. cit.*, p. 269). Dr. Joy says that this insect has hitherto been confused with *B. arenarius*, Payk. It has been taken at Dovercourt, Dawlish, Tresco, and in Ireland (Co. Kerry).

(16) *Thinobius bicolor*, sp. n., described by Dr. Joy (*loc. cit.*, p. 10) on three specimens captured on the banks of the river Truim, Inverness-shire, on May 1st, 1910. It is a broader insect, and has longer antennæ than *T. linearis*, Kr.

(17) *Lesteva luctuosa*, Fauv., introduced by Mr. Donisthorpe on a specimen taken in the Isle of Eigg, in moss in a waterfall, in September, 1911 (*Ent. Record*, vol. xxiii., p. 301).

(18) *Anisotoma algirica*, Rye, introduced by Mr. Donisthorpe (*loc. cit.*, p. 44) on a specimen taken in a sandpit near Oxford, on July 3rd, 1910. It was named by Dr. Fleischer. Rye described this species on specimens from Algiers (*Ent. Mo. Mag.*, vol. xii., p. 151).

(19) *Anisotoma* (*Liodes*) *stenocoryphe*, sp. n., described by Dr. Joy (*Ent. Mo. Mag.*, vol. xlvii., p. 173) from two specimens taken by Mr. W. E. Sharp, at Forres, Inverness-shire, in September, 1910. Dr. Fleischer was of opinion that the insect was *L. calcarata*, Er., var. *nigrescens*.

(20) *Choleva fuliginosa*, Er., introduced by Dr. Nicholson (*Ent. Record*, vol. xxiii., p. 67) on specimens taken in dead leaves in North Devon. Taken also by Mr. Dollman in moles' nests, at Harrow, and by Mr. Donisthorpe at Hartlepool, in carrion. It is probably widely distributed, and is confused in collections with other species.

(21) *Colon microps*, Czwal. This species must be reintroduced into our list, as Mr. Champion has taken it at Cobham, Kent (*Ent. Mo. Mag.*, vol. xlvii., p. 65). Dr. Joy (*loc. cit.*, vol. xlvi., p. 268) suggested that it should be deleted from the British list.

(22) *Eryx fairmairei*, Reiche, introduced by Mr. Donisthorpe on specimens taken in Sherwood Forest (*Ent. Record*, vol. xxiii., p. 325).

(23) *Rhynchites harwoodi*, sp. n., described by Dr. Joy (*Ent. Mo. Mag.*, vol. xlvii., p. 270); hitherto confused with *uncinatus*, Th. All the specimens which Dr. Joy had seen had been taken in Berkshire and Hampshire. It differs from *uncinatus* in having no tooth at the apex of the anterior tibiæ.

(24) *Barypithes duplicatus*, sp. n., described by Mr. Keys (*loc. cit.*, p. 128). Previously it had been confused with *B. pellucidus*, Boh.

(25) *Ceuthorhynchus mölleri*, Thoms. (= *rotundatus*, Bris.). Canon Fowler considered this to be a doubtful species (*Col. Brit. Isl.*, vol. v., p. 344), but Mr. J. Edwards shows (*Ent. Mo. Mag.*, vol. xlvii., p. 208) that it is a perfectly distinct species, and can be readily separated from *marginatus*, Pk., and *punctiger*, Gyll.

NEW VARIETIES AND ABERRATIONS.—(1) *Anisotoma calcarata* ab. *nigrescens*, Fleisch., introduced by Mr. Donisthorpe on a specimen swept up in Parkhurst Forest, on August 21st, 1910 (*Ent. Record*, vol. xxiii., p. 44).

(2) *Anisotoma curta*, Fair., var. *donisthorpei*, n. var., described by

Dr. A. Fleischer (*loc. cit.*, p. 43); it was taken at Hartlepool by Mr. Gardner, Mr. Donisthorpe, and the author.

(3) *Anisotoma dubia*, Kug., var. *davidiana*, n. var. This variety was described by Dr. Joy (*Ent. Mo. Mag.*, vol. xlvii., p. 11) as a new species, distinct from *dubia*. A few months later (*loc. cit.*, p. 167) Dr. Joy came to the conclusion that it was only a variety of *dubia*. It seems to be generally distributed throughout England.

(4) *Telephorus thoracicus*, Oliv., var. *suturalis*, Schilsky, introduced by Mr. Champion (*loc. cit.*, p. 17) on specimens taken at Gosport by Mr. Pool, and at Woking by Mr. Champion.

(5) *Bryaxis impressa*, Panz., var. *unicolor*, n. var. This variety was described by Mr. J. Collins (*loc. cit.*, p. 276) from specimens taken in Cheshire, and at Yarnton, Oxford.

Changes in Synonymy.—(1) *Haliplus confinis*, Steph., var. *pallens*, Fow. Mr. Edwards (*loc. cit.*, p. 1) was of opinion that this variety is an authentic species, and should be known as *H. pallens*, Fow.

(2) *Haliplus cinereus*, Aubé. According to Mr. Edwards (*loc. cit.*) this insect should be known as *H. laminatus*, Schall.

(3) *Laccobius scutellaris*, Mots. Dr. Sharp appears now to be of opinion that the insects he recently introduced under this name are more correctly known as *L. regularis*, Rey. (*loc. cit.*, p. 22).

(4) *Homalota basicornis*, Muls. Dr. Sharp states (*loc. cit.*, p. 257) that our exponents of *H. autumnalis*, Er., are really *basicornis*, Muls., but he also expresses the opinion that there is no reason why the true *autumnalis* should not occur in Great Britain.

(5) *Stenus crassus*, Steph., var. *littoralis*, Th. This variety is *Stenus formicetorum*, Mann. Mr. Dollman, who took a specimen at Ditchling, in August 1910, introduced his capture as a species new to our fauna (*Ent. Record*, vol. xxiii., p. 95). Mr. Newbery, however, rightly points out (*Ent. Mo. Mag.*, vol. xlviii., p. 11) that there is only a change of synonymy in the matter, the var. *littoralis* becoming the species *formicetorum*.*

(6) *Quedius vexans*, Epp., should be known as *Q. heidenreichi*, Bernh. The author pointed out (*loc. cit.*, p. 140) that the insect found in moles' nests and known amongst British coleopterists as *Q. vexans* was an insect new to science, which had recently been described by Dr. Bernhauer. Capt. Deville has also described the same insect as *Q. talparum*.

(7) *Anisotoma* (*Liodes*) *nigrita*, Schmidt. The insects which we have called by this name really belong to the species *A. scita*, Er., as pointed out by Dr. Joy (*loc. cit.*, p. 168) and therefore *nigrita* disappears from our list.

(8) *Anisotoma* (*Liodes*) *obesa*, Schm. Dr. Joy was of opinion (*loc. cit.*) that this species is only a variety of *A. dubia*, Kug.

(9) *Anisotoma* (*Liodes*) *similata*, Rye. Dr. Joy was of opinion (*loc. cit.*) that this insect is only a variety of *A. badia*, Stm.

(10) *Longitarsus pulex*, Schrank, should, according to Messrs. Tomlin and Sharp, be known as *L. obliteratus*, Rosehn. (*loc. cit.*, p. 245).

(11) *Longitarsus ater*, F., should be known as *L. parvulus*, Payk. (*loc. cit.*, p. 246).

Messrs. Tomlin and Sharp are of opinion that *Longitarsus niger*,

* I understand Mr. Dollman maintains that his original determination is right.—(H. J. T.)

Koch, must be dropped out of our list altogether, as it has never occurred in this country (*loc. cit.*, p. 274).

(12) *Ceuthorhynchidius distinctus*, Bris. This species will have to be omitted from our list, and in place of it two new abs. introduced, viz., *Ceuthorhynchus marginatus*, Payk., ab. *distinctus*, Bris., and *Ceuthorhynchus marginatus*, Payk., ab. *inaequalis*, ab. n. (*loc. cit.*, p. 208).

RECORDS OF THE CAPTURE OF RARE SPECIES.—During the year there has been a fair number of records of the capture of rare species. Mr. Donisthorpe records:—*Mycetoporus forticornis*, Fauv., from Tubney; *Dromius angustatus*, Brullé, *Agathidium badium*, Er. (also taken by Dr. Nicholson), and *Athous undulatus*, De G. (also taken by the author), from Rannoch; *Homalium brevicolle*, Thoms. and *Dyschirius angustatus*, Ahr., from Nethy Bridge; he also states that he has bred ♀ forms of *Anaspis hudsoni*, Donis., from fir bark brought home from Nethy Bridge. Commander Walker has taken *Plegaderus dissectus*, Er., *Medon apicalis*, Kr., *Oligota apicata*, Er. and *O. granaria*, Er., at Oxford; and *Malachius vulneratus*, Ab., near Sheerness. Dr. Sharp records *Aleochara discipennis*, Muls., and *Longitarsus nigerrimus*, Gyll., from the New Forest; Dr. Nicholson has taken the former in Devonshire, Mr. Bagnall took *Neuraphes rubicundus*, Schm., and *Pseudopsis sulcata*, New., at Gibside. Mr. G. A. Brown records *Helophorus tuberculatus*, Gyll., in some numbers; and *Mycetophagus quadriguttatus*, Müll., from Coatbridge. *Homalota picipennis*, Mannh, is recorded from Little Marlow by Mr. W. E. Sharp, and from the New Forest by Dr. Cameron. *Bledius crassicollis*, Lac., was taken at Wicken Fen by the author, and latter on by Mr. W. E. Sharp. Mr. Jennings records *Gnorimus nobilis*, L., and *Epuræa angustula*, Er., from Epping Forest. Mr. Champion notes that *Criocephalus ferus*, Muls., is spreading in the South of England, and has now been found at Guildford. The author has recorded *Megacronus inclinans*, Grav., *Lamprinus saginatus*, Heer, from Nethy Bridge; and *Bryoporus rugipennis*, Pand., from the Cairngorms.

(*To be continued.*)

Ten Days in the Cevennes.

By G. T. BETHUNE-BAKER, F.L.S., F.Z.S., F.E.S.

I left Digne by the train leaving at six o'clock in the morning, for Mende, where I had arranged to meet my friend Mr. A. H. Jones. My quickest route, not however the shortest, was to go down to Marseilles and back up to La Bastide, where I had to sleep, as I could not get through the same day, there being no night trains. It took me fifteen hours and a half to cover under 300 miles, but I thoroughly enjoyed the lovely country through which we passed. The views of the Bay of Marseilles were very fine, and were seen to perfection, for entering on the east and going all round and out on the west, we half encircled the bay. Having had a comfortable night's rest I was up betimes on the morning of July 15th (the great National Fête day), and having completed my "petit déjeûner" soon after 7 a.m., I took a walk on to the high table land. It was, however, too early and too high, considering the hour, for anything to be on the wing, and as I

returned to catch my train at 10 a.m. the only butterflies I saw, except a few *Pieris rapae*, were several *Erebia stygne*.

Mende was reached by about 12.30, and I confess to a feeling of satisfaction that for at least ten days another day would not be spent inside a railway carriage; it seems such a waste of time when you are going through beautiful country to be penned up thus. After a good "déjeûner" I made my way up to the ridge of the Causse, but did not reach the top, as I struck a blind path, blind, that is to say, on the side I had taken. The path was mostly through woods, though here and there a nice open green space was met with, where I took *Anthrocera hippocrepidis*, a single *A. punctum* var. *contamineoides*, *A. hilaris*, and a single *A. fausta*. This latter became more abundant later on. *Satyrus alcyone* was by no means uncommon, and I also took one *S. circe*. As I descended along the St. Privât path, *Erebia stygne* occurred on the screes to the left, but the few specimens I took were generally allowed their freedom, as they were very worn indeed. I returned to the hotel to find my friend come back from his day's excursion, rejoicing in the fact that *Hirsutina dolus* was just coming out, and that he had taken several that day. This species was really the object of our visit; for it we worked every day, and in the end we were rewarded fairly satisfactorily. Mr. Jones knew a couple of localities, where we found it sparingly each day. One was a stony valley or gully about half a mile long, between more or less cultivated fields, and leading up into the beautiful woods that clothe the hillsides all around. Another was an open stony bend beside the river. In each of these places we were, on the whole, not unsuccessful, but the success was only obtained by hard plodding, at times, indeed, a real and severe grind, as we paced up and down the stony places without much green to refresh the eyes, the sun being cloudless the whole time. Up and down our respective quarters we went, sometimes passing each other, changing places, or comparing notes, with the intense heat reflected from the ground around, to say nothing of the sun's rays themselves, which ever and anon were so strong as to compel a resort to the shade of some fine trees that fortunately edged one side of the little valley. We were both of us, however, determined not to return empty-handed. The first day we each took two or three specimens, and many an *Agriades coridon* was caught and released in mistake for *H. dolus*, whilst, impossible as it may seem, more than once I took *Melanargia galathea* by mistake in like manner, it was a very small form that I obtained there, and I record it simply because it seems to be such an extraordinary thing, but I find that others on the same quest have also done the same thing. *Hirsutina damon* was equally common with *A. coridon*, and many females did we take in the hope of their turning out to be female *H. dolus*; at times, of course, we were not disappointed. *Polyommatus escheri* in both sexes was not uncommon, whilst *Plebeius argus* (*aegon*) and *Polyommatus icarus* occurred sparingly. *Lowcia alciphron* var. *gordius* was fairly abundant, the females being in magnificent condition. I also took on the same ground a single *L. dorilis* and a few *P. hylas*, the latter, however, were becoming *passé*. One day, as we were going from our hunting ground to the small wayside inn to quench a consuming thirst, we knocked off some clematis bushes one or two *Celastrina* (*Lycaenopsis*) *argiolus* of the

second brood, here also *Callimorpha hera* was taken several times. In our stony valley, whilst waiting for our special quest, I took a long and splendid series of *Anthrocera sarpedon*, this species being quite the commonest of the genus at this time. Among those taken are several handsome aberrations, mostly in the way of increased size and confluence of spots. *A. hippocrepidis* was taken here sparingly. Among the *Melanargia galathea* var. *leucomelas* was occasionally seen, Mr. Jones taking several. I, however, had to be content with but two. Along one side of the ground were some fine large trees, around which *Satyrus alcyone* loved to disport themselves, but they were excessively wary. They, as usual, delighted to rest on the main trunks, and unless you saw them settle it was very difficult to find them, and at the least sign of the net off they flew among the leaves above. *Leptosia sinapis* was not uncommon, and we secured several beautiful specimens of var. *diniensis*.

Our experience of *H. dolus* may be of some interest. It is one of the most beautiful of European blues, and as such they behave. It was a most unusual thing to see them before 12 o'clock in the day, most were taken on the wing, their flight being decidedly rapid, occasionally we saw them settle. I do not think I saw one toying with other species of the group, they appeared to be generally very exclusive. In another locality where a streamlet crossed the path, and where crowds of other blues were drinking, we only saw two doing so, though the sun was so intensely hot that we avoided standing still in it as much as possible. Their habits differ according to locality, on the Causse we found them frequenting a grassy field with much very long grass in it, here they were entirely in stony quarters. About a quarter of an hour's walk from this spot was a very narrow valley with the hillsides somewhat precipitous and a small stream running quietly along the centre. Here was a profusion of valerian, clematis, bramble and many herbaceous flowers that I did not recognise, and at a certain bend there was a perfect *embarras de richesse* of these flowers and shrubs, which were the delight of Argynnids, of *Limenitis camilla*, of *Pararge maera*, etc. At one moment we saw several *Argynnis niobe* var. *eris* sucking the nectar of honeysuckle, *Dryas paphia* by the half dozen, *Brenthis daphne* and *B. dia*, whilst over all swung and hovered in its lovely flight *L. camilla* in abundance, it was a sight that neither my friend nor I will forget for its perfect beauty of life and colour and situation. In addition to the insects already named, *Parnassius apollo* was there and several Hesperids as well. As we entered this lovely spot from the road a large insect flew by, which I at once recognised as an *Apatura*, fortunately for me it doubled back with the result that it found its onward course suddenly stopped by the folds of my net. It turned out to be a perfect specimen of *A. ilia* var. *clytie*. Previously to this we had met with the species on the main road much nearer Mende, when a beautiful specimen fell to Mr. Jones' hand. Whilst in this neighbourhood we took several others of both *A. ilia* and var. *clytie*. Here also I took *Eugonia polychloros* in nice condition.

We also spent one or two days on the top of the Causse, well over 1,000 ft. higher than where we had been working for *H. dolus*. Our first day there produced several species not seen at all at the lower altitude. Ascending by way of the Ermitage de St. Privât, we saw

but little new to begin with, but as we ascended higher, insects became abundant. *Parnassius apollo* was not infrequent, the females being large and very dark, the males rather white. Mr. Jones took a single *H. dolus*, whilst *P. escheri* was not uncommon. *Pararge maera* var. *adrasta* was also fairly plentiful and fine, *Adopaea flava* (*thaumas*) was likewise plentiful, whilst a few *Thymelicus acteon* fell to our nets, *Coenonympha arcania* was taken at the lower levels, the specimens being, however, small, but up near the Causse, var. *darwiniana* was obtained. Here also, before we reached the top, *Anthrocera fausta* was fairly common, and we took one or two both of *A. carniolica* and its var. *diniensis*, whilst I also secured a single *A. trifolii* very close to its ab. *minoides*. On the top of the Causse, which reminded one strongly of the high Yorkshire moors in some of its details, *Melitaea didyma* was very common, and the females fairly abundant, very dark and grey, and I secured some beautiful specimens scarcely differing at all from var. *meridionalis*, the males also being very brilliant in tone of colour. *Melitaea phoebe* was not rare, but past its best. *M. athalia* was obtained rarely, but only a single specimen of *M. dictynna*. The commoner blues were plentiful so that we made a fair "bag," though its quality may not have been as good as elsewhere. Our last day had now come and we decided we would work the horizontal path along the sides of the mountains southwards. Circumstances, however, sometimes alter cases, and when Mr. Jones came down in the morning he said, as we were having our coffee and rolls, "Let us go on to the top of the Causse again. I had a peculiar dream. You remember that field where you joined me the other day? I dreamt that in that field I was taking *H. dolus* by the dozen." I knew exactly the spot he referred to, some considerable way along one of the moor paths, and readily agreed to go again. As before we soon parted to somewhat different grounds, and I was again busy with insects of one kind or another. *Satyrus circe*, fine and large, was everywhere flapping about in all directions; *S. alcyone*, also in fewer numbers; *Colias hyale*, with beautiful fine white females, were not uncommon; *C. edusa* being nearly over; whilst of *Gonepteryx rhamni* I took a single male; *P. escheri* and *H. damon* were very common. At last I came to the field of the night vision, to which my friend had repaired earlier than I, and as I came in sight I heard his well-known voice say "Come, come along, here is *H. dolus* in plenty." When I came up to him I found he had taken twelve to fifteen and several females in quite a short time, so I was soon at work and did not finish until I had secured ten or a dozen also. This was our closing excursion in the Cevennes country, and we were both pleased with our success.

Of Heterocera we saw comparatively few. I have no doubt we missed other Rhopalocera, as our minds were specially bent on one insect, and I am quite conscious that I allowed several species to pass that otherwise I should have taken. *Emydia cribrum* in two of its forms, var. *punctigera* and var. *candida* was not uncommon; *Coscinia striata* (*grammica*) was less common in this district. *Lasiocampa quercus* was stopped once or twice in its wild flight across the high ground, whilst *Heliothis dipsacea* and *Acontia luctuosa* were taken at lower levels. Thus ended a very pleasant trip, and the following day we went on to Toulouse *en route* for the Pyrenees, though Mr. Jones made up his mind to come back here again for *Erebia neoridas* on our final

return home. After spending between a fortnight and three weeks in the Pyrenees, my friend visited Mende again for a few days, and he has asked me to incorporate his notes in this paper.

He arrived at Mende on August 9th, and the following morning being hot and sultry wended his way up the Ermitage de St. Privât, and found the males of *Erebia neoridas* extremely numerous along the path, but very deft in evading capture, whilst the females obtained on the grassy slopes were not uncommon, and a long and beautiful series of both sexes was obtained. Among other insects Mr. Jones mentions that *Issoria lathonia* was very abundant, two or three feasting on a single head of lavender at one moment; *Satyrus semele* was common, but worn; *S. circe* being still plentiful and in the pink of condition. This shows that the latter species is on the wing in good condition for a month. *S. actaea* was also still on the wing, a single male being taken. The two following days were spent on the Causse de Mende (3475 feet) and my friend writes as follows relating his experience:—

"During my absence of nearly three weeks a complete change had come over the butterfly life on the Causse. *Plebeius ægon*, *Aricia medon* (*astrarche*) *Polyommatus icarus*, *P. hylas*, *Agriades coridon*, *Hirsutina dolus*, *H. damon* and *P. escheri*, were there it is true, but in a most dilapidated condition. There was, however, one addition to the Blues to enliven the somewhat disappointing scene, *viz.*, *Agriades thetis* (*bellargus*). Not all the butterflies were in "rags and tatters"—by no means. Numbers of *Colias hyale* and *C. edusa* were flying about in every direction, ab. *helice* being by no means uncommon and all in lovely condition—*Satyrus statilinus* and *S. arethusa*, of which I took a beautiful but short series, were by no means rare; indeed the former seemed to be only just emerging, being so perfect. *Epinephele lycaon* was in great abundance but very worn! In a solitary freshly emerged female of *E. tithonus*, I was surprised to take a species I had met with in England five weeks previously. The *Hesperidæ* I took were interesting but require identification. The abundance of *Anthrocera* (*Zygaena*) *carniolica* was a great feature at rest on lavender blossom. At the top of the Causse, and about a mile from its northern edge there is a slight depression or ravine extending some miles southward and it was only here in this sheltered spot that butterfly life was abundant. On the exposed Causse itself there was a singular absence of insect life."

Mr. Jones sent me a couple of *S. statilinus* for examination, and they are typical of all he took. I have never seen so beautiful a form, they are all deep sooty black above, whilst below they are in general tone much the same colour. I have never seen anything to compare with the depth of colour. I have a fair series from Brussa, but the specimens, though in good condition, are quite brown compared with these Cevennes specimens.

P.S.—On reading the proof of the foregoing lines I find I have omitted one or two things. I took one beautiful, though small specimen of *Satyrus briseis* on the Causse, where also *Pararge lycaon* was plentiful. The head-quarters of the former species was lower down in more wooded country. One day as we were sitting by the river near the *dolus* ground we noticed an incident that I have seen recorded from the tropics, but have never witnessed or seen recorded from Europe. Both *Melanargia galathea* and one of the Pierids were

enjoying the sunshine, flying over the water, and several times we distinctly saw them make a rapid descent and plunge their bodies into the stream. We were close enough to see the process quite clearly. The heat was very great and it was evidently a pleasure, and possibly a relief to them, to come in contact with the cool water.—G. T. B.-B.

NOTES ON COLLECTING, Etc.

NOTE ON THE ABUNDANCE OF BISTON HIRTARIA IN 1912, AND ON INSECT PERIODICITY.—On April 6th I paid a visit to some friends near Leytonstone, where I found *B. hirtaria* in extraordinary abundance. In two roads which I visited, each about half a mile long, the front gardens on both sides were lined with lime trees, and each tree had its moths, some from 20 to 30, and on one side of a six inch diameter trunk I counted 70 specimens.

My friend tells me the caterpillars were a perfect pest last year, the paths being covered with their trodden remains. The moths varied from pale fawn to very dark brown, and grey, and quite a number were as large as those illustrated on the frontispiece plate in Series 2 of South's *British Moths*. Having no pillboxes I endeavoured to bring some of the best forms home in a large cardboard box, the only available receptacle. Unfortunately one of the females had the audacity to start laying her ova under the wings of another inmate, which resulted in a general scrimmage. On reaching home I set a number of the males free to the evident delight of the local sparrows, who soon made short work of them, catching them as they flew. I put some of the less lively males on an oak trunk in my garden, and some females on lime trunks. On visiting the trees next morning I found that two males had been seized by spiders and dragged into their snares in holes in the bark. The females were still in the same position seven days afterwards, having in the meantime laid their green ova in chinks in the bark. I may mention that a female laid in a a pillbox a batch of cream-coloured ova.

What is the cause of this periodical abundance of a species? One season it is *Phalera bucephala* that infests lime trees, rose bushes in gardens, and anything else it can feed on, in districts as far apart as Dulwich and Dartford, another season *Malacosoma* (*Bombyx*) *neustria* devastates the fruit trees on the South Coast, when bracelets of ova can be found by the score on a small bush, another year *Porthesia chrysorrhœa* is stripping the hawthorn hedges on the South-East Coast, or else its place is taken by one of the small ermine moth larvæ which cover the hedges with their webs in every direction. Larvæ of *B. hirtaria* were also plentiful in North Kent and East Dulwich last year, but the emergence in the latter place has only been normal.

It is quite evident that the fine weather last Spring and early Summer suited the larvæ, and that the warm wet winter has favoured the emergence of the imagines, but one is tempted to ask why we did not get an abundance of *P. bucephala* larvæ as well, which also feed on lime trees.—C. W. COLTHRUP, 141, East Dulwich Grove, S.E. *April 15th*, 1912.

NOTE ON THE EARLY SEASON.—I have just found (April 16th), at Margate, two full-fed *Abraxas grossulariata* larvæ, spinning up for pupation, and three others practically full fed on *Euonymus*. I also

saw *Celastrina argiolus* flying at East Dulwich on April 7th, which date struck me as being early.—Id.

Xylina ornitopus, Rott.—In the April, 1911, number of the *Ent. Record*, vol. xxiii., p. 97, Mr. Dadd proposes the name var. *lactipennis* for the pale form of the above species, which is taken in the New Forest. As however Mr. Warren in "Seitz' Palearctic Lepidoptera" (published April 25th, 1910), on page 25 of the *Noctuae* letterpress, says, "the whiter forms are separated as ab. *pallida*, Spul.," Mr. Dadd's name would appear to fall. Although the figure on plate 30*h*, of Seitz is not so pale as our New Forest specimens, probably due to the printing, the above description and name of Spuler's would cover them. In conclusion I should like to mention, that the blue-grey form occurs rarely in the New Forest. I took one in October, 1906, two in October, 1909, and one in October, 1910.—Id.

Pheryxus livornica.—A friend of mine, Mr. Streeter, of Petworth, Sussex, had a specimen of *P. livornica* (The Striped Hawk Moth) brought to him on July 2nd, 1911, by a boy, who took it the day before at rest on some grass. He had kept it in a box overnight, and from its condition I should say it was freshly emerged when taken.—Id.

The Cleansing of Greasy Insects.—A New Solvent.—I have at last discovered a simple and absolutely effective system of treating greased lepidoptera which I venture to publish, hoping that it may prove as great a boon to others as it has to me. I have tried so many things with such indifferent success that I have often felt inclined to throw away badly greased moths. Toluol has been a revelation to me. Procure from your druggist a quart of toluol—$C^7 H^8$ is the formula I believe—it is cheap and will get rid of the grease in a very large collection. This is how you should apply the cure; take three vessels, size according to your needs, pour a certain quantity of toluol into the first and put one or two butterflies or moths into the same. Leave them there for 24 hours and then pass them on to a second bath in the second vessel for another 24 hours, and place new subjects in the first bath. On the third day remove insects from the second into the third bath and from first into second. Thus each has three full days of the cleaning process and comes out of his bath spick and span and wonderfully rejuvenated. I need hardly add that no resetting is required as the bath does not in the least relax the patient. The first bath takes out the worst of the fat, the second removes what is left and the third puts on the final touch of grace. Even the oiliest of my Cossids has yielded to the persuasions of this bath. To try it is to use it, as the advertisements say. Those who despair of effecting a radical grease cure and who refuse to give this method a trial are humbly requested to make me a present of their greasy treasures. Don't forget to cover up your vessels with pieces of glass to prevent evaporation of the toluol.—P. A. H. Muschamp, F.E.S., Stäfa, Zurichersee.

Second Broods in 1911.—Having obtained ova last year from two females of *Argynnis aglaia*, which I had sleeved over a large clump of garden pansy planted in a box, I placed them outdoors, expecting them to hatch and proceed to hibernate in due course. In late autumn I had occasion to look at the box, and to my surprise found that the food-plant had been completely devoured and the larvæ, which were all more than half-grown, had succumbed for want of food.

In late August last year a second generation of *Brenthis selene* occurred here, of which more than thirty specimens were seen. A few days after, in a field about two miles from the first locality, I saw two males. None of these differed from ordinary typical specimens except that they were all rather small.

On September 20th a single specimen of *Xylocampa areola* ♂ (*lithoriza*) was seen, and a few days later an example of *Odontopera bidentata* ♀ occurred.—R. Ashton Nichols, 30, High Street, Ilfracombe.

Micro-Lepidoptera of Canvey Island, Essex.—I had the pleasure on Tuesday last of spending an hour or two on Canvey Island. My special quest was larvæ or pupæ of our local Psychid *Whittleia retiella*. I considered myself very fortunate in finding larvæ feeding as well as cases fixed for pupation, eight in all. I also got larvæ of *Goniodoma limoniella* in old stems of *Statice* as well as *Adactylus bennettii* larvæ on the new growth. *Elachista argentella* occurred in numbers and one pupa, as well as *Bucculatrix maritima*, both larvæ and pupæ on *Poa maritima*.—F. G. Whittle, 7, Marine Parade, Southend. *May 9th*, 1912.

SCIENTIFIC NOTES AND OBSERVATIONS.

Polia chi and Protective Resemblance.—With reference to the query in the March number of the *Ent. Record*, p. 76, on *Polia chi*, I came across the species when in South Devon last year. Specimens were found at rest on lichen-covered oak trees in a wood, and on boulders on a moorland, where they were not easily seen. On outcropping and broken rocks along the roadside they were fairly easily detected, and on railway arches made of brown stone they were very conspicuous. On a grey lichen-covered wall, on one side of a main road, they were as difficult to discover as the most difficult *Bryophila muralis* (*glandifera*), whereas on the other side of the road, where the wall was dark brown, with here and there a dark green lichen, they were quite easily seen. When once discovered on the grey lichen-covered wall, it was apparent that the insect was much darker than its surroundings, and had the appearance of being greenish-blue in colour. Unfortunately I did not take my camera on this trip, but am quite sure a half-plate photograph would have made the insect appear quite conspicuous, whereas the reverse was the case. It is a difficult matter in an ordinary photograph to convey a true idea of how well a moth is concealed. Notwithstanding the conspicuous position in which this species was at rest on the opposite dark wall, which I left for observation, they were as free from attacks by birds and other enemies by day as their "*protective*" resemblance brethren on the light grey wall. I also found others of this species at rest on pine trunks, where they were soon discovered by the practised eye, which is on the lookout for a pattern and anything approaching a triangle, but the casual observer would probably pass them by as patches of lichen. The term "protective resemblance," as applied to butterflies and moths at rest, does not strike me as a very happy one. To be "protective," it seems to me there must be evidence that these insects are subject to the attacks of birds or other enemies when at rest in the day time. As far as I can see this has not been proved. I quite admit that moths at rest

often bear a remarkable resemblance to their surroundings, or to the surface on which they rest; on the other hand there are many moths which are most conspicuous when at rest. For splendid examples of resemblance to surroundings, commend me to the collar stud lost on the carpet, or a pair of forceps lost on the beach. I have spent many illuminating moments in search of both. I have been an observer of birds for years, and some years ago I started on a campaign to prove that birds *did* prey on moths and butterflies, but I have found it quite the exception for birds to attack either. The exceptions I have recorded in the *Ent. Record*, from time to time, and in almost all these instances the insects have been taken when flying. Granted that Tits may take some moths at rest on the trunks (I have never actually seen them do so), I doubt if they look for wings at all, but rather the body, eyes, etc., of the insect, they probably also rely on their beaks. I should say that it is at dusk and at night, when butterflies and moths are most open to the attacks of enemies, such as owls, bats, spiders, earwigs and other creeping things, when their colours and markings can have no protective value whatever. It seems to me the human collector is practically the only species against which they need protection in the daytime. Why is it that *Eubolia bipunctaria* and *Gnophos obscuraria* (which are so much like the ground on which they rest) do not rely on their "protective" colouring, but fly off repeatedly at one's approach? We are told that all things in nature have a use. *Lobophora carpinata* (*lobulata*), when freshly emerged, has a beautiful pale-green bloom on it, resembling the green lichen on the birch trunk, yet in a day this is completely bleached by exposure to the light, the moth then resembling the silver birch trunk on which it rests. Now what causes this green bloom and of what use is it, when the moth, without it, is so like its resting place? In speaking of moths at rest on old grey fences being conspicuous, I have been met with the remark that fences must not be taken into account as these moths were evolved before fences were in existence. To this I would reply that according to those who believe in "protective resemblance," these moths ought to have been eaten off by birds, as pale *Amphidasis betularia* are supposed to have been where var. *doubledayaria* is now predominant. The latter, by the way, has occurred since fences have been in existence.—C. W. Colthrup, 141, East Dulwich Grove, S.E.

CURRENT NOTES AND SHORT NOTICES.

The Birmingham Photographic Society held its 27th Annual Exhibition from February 24th to March 9th, when a Scientific Section was again included. Mr. H. Main secured a plaque, with a series of photographs showing "Nest-making of *Polydesmus complanatus*," and Mr. A. H. Hamm a similar award with a "Set of 24 photographs of Butterflies showing Resting Habits," while certificates were awarded to Mr. A. E. Tonge (2) for "Life Cycle of Purple Emperor Butterfly" and "Photomicrographs of Eggs of British Butterflies and Moths," to Dr. T. Gray Duncanson "The Birth of the Dragonfly," to Mr. A. W. Dennis for "Common Walnut," and to Mr. C. W. Colthrup for "Set of 25 Photographs showing Resting Attitudes of Moths."

The *Terebrae of the Chalastogastra* (saws, so called, of sawflies) is

the title of the main topic in the Address read to the Entomological Society of London by the President, the Rev. Francis David Morice, M.A. At considerable length, and with minute detail and precision, the author describes the complex actions carried on in the use of these highly developed organs, giving a full account of his own original observations. He gives two plates of figures of these wonderful organs, and also five other plates to illustrate his historical summary of our previous knowledge of this group, as given in the works of Vallisnieri and Reaumur.

The *Entomologisk Tidskift* of Stockholm, for 1911, contains a considerable amount of Lepidopterous matter concerning the Fauna of the Scandinavian area. Torsten Largerberg gives a long series of notes on the Swedish Macro-lepidoptera, J. Werner-Nielson summarises the distribution of the Macro-lepidoptera of Norway, John Peyron furnishes a series of notes on the life-histories of various species, Ossian Dalgren describes the pupation of *Cossus cossus*, Erik Uretland discusses and figures *Eriogaster lanestris* var. *arbusculae* from Norway, etc. One of the most important papers published is that by the explorer Yngve Sjöstedt on the Termites of the Congo State. With the *Tidskrift* for the year has also been published a general Index of this periodical for the past twenty years. We can only use words of praise for such efforts. Without a periodical Index of Indexes it is an enormous labour to wade through volume after volume of our magazines only to find probably that one has missed an important item through the mere fag of the trouble.

The *Annals of Scottish Natural History* has ceased to appear as such, but with the omission of botany it is resuscitated under the title of *The Scottish Naturalist*, and is apparently still to be carried on under the auspices of the personnel of the Royal Scottish Museum. Instead of being issued quarterly it now appears monthly. In the January number Mr. W. Evans has an article on the appearance of the handsome dragonfly *Sympetrum fonscolombii* as new to the Scottish list.

In the *Ent. Mo. Mag.* for February Mr. J. E. Collin gives a further section of the notes on new Diptera by the late G. H. Verrall. *Hilara beckeri* from Aviemore and Brodie; *H. carinthiaca* from many localities; *H. braueri* from the late W. Wilson Saunder's collection; *H. cinereomicans* from various localities; *H. heterogastra* from Wormsley; *H. cingulata* from Ringwood, Porthcawl, etc.; *Œdalea apicalis* from the New Forest; *Trichina opaca* from Nairn and Wicken; *Leptopeza sphenoptera* from Porthcawl, Ivybridge, etc.; *Clinocera wesmaelii* from Hereford; *Ardoptera ocellata* from the Isle of Wight; *Tachista tuberculata* from Herefordshire; *Psilopus loewi* from Scotland Fen, Suffolk; *Dolichopus cilifemoratus* from Porthcawl; and *Paecilobothrus comitialis* from Seaford and Walton-on-Naze. For many of these records we note that Mr. Verrall was indebted to the assiduous work of that keen student of this Order, Colonel J. W. Yerbury.

In the *Ent. Mo. Mag.* for February, Mr. Eustace R. Bankes contributes an article, with a plate of comparative genitalia, on *Monopis crocicapitella* (*ferruginella*, in part, *heringi*, *hyalinella*, and *lombardica*) and *M. ferruginella*. He points out that the former species is essentially a coast insect and very local, while the latter is generally distributed inland.

We have received a copy of *Bibliographia Coleopterologica*, a list of volumes and separata on Coleoptera from W. Junk, of Berlin. That it is comprehensive will be understood when we say that it consists of the titles of more than 4,000 separate publications, with an introduction (14 pp.) on the literature of Coleopterology, and a plate of portraits of a number of living authors.

In an article on the recently established species *Rhyacionia* (*Retinia*) *purdeyi* and *R. logaea*, Mr. R. South, in the February number of the *Entomologist*, makes the following remarks which we think worthy of reprinting and reprinting. "Frequent name-changing, whether generic or specific, is of course troublesome, not to say perplexing, but it appears to be inevitable. The modern trend of entomological action has been not only to uphold priority but to enforce it, so that in the present day the "law" is almost universally recognised by systematists. Some there are certainly who advocate exceptions and restrictions, but *if we are ever to have anything approaching finality in nomenclature, strict priority without any qualification whatever must prevail.* There can be no question that the only method of securing even approximate stability is to ascertain with certainty not only the earliest legitimate names of species but the true generic position of species in classification." The italics are ours. Will the International Congress of Entomologists take up this question and not leave naming to the untrammelled aberrant idiosyncrasies of the individual?

In the *Entomologische Mitteilungen* for the current year a series of useful bibliographical studies has been commenced by Dr. H. Roeschke. The books dealt with so far are Panzer's *Fauna Insectorum Germanicae* and Sturm's *Deutschlands Fauna*.

It is interesting to find from an article by L. H. Bonaparte-Wyse in the *Irish Naturalist*, that *Anthrocera purpuralis* still strongly holds its own in co. Galway, while *Vanessa io* was in absolute abundance; the beautiful form of ♀ *Polyommatus icarus* was noted; *Agrotis lucernea* flew in some numbers locally in the sunshine, and *Argynnis aglaia* occurred rather freely.

The *Bulletin de la Société lépidoptérologique de Genève* for 1911 has recently come to hand. We have nothing but praise for this admirable periodical. Whether one regards the general get-up and production of the magazine itself, or considers only the value of the matter contained in its pages, the opinion must be the same. That Prof. Charles Blachier is the general Editor speaks for itself, while Dr. Reverdin, Mr. Arnold Pictet, and M. J. Culot are among the contributors, a guarantee of the quality of the matter. There are four beautifully coloured plates, and to say that they are the production of M. Culot, stands for their excellence. It is rarely that one gets such a galaxy of talent as form the active and productive members of this small Society. Turning to the matter, we have first a long article discussing critically the characteristics of the three Hesperid species, which have hitherto been so much confused, *viz.*, *Hesperia malvae*, *H. malvoides* (*fritillum*), and *H. melotis*. This paper is illustrated by an extremely successful coloured plate, a plate of the genitalia, an enlarged comparison of *malvae* and *malvoides*, and a map of the species distribution. In the second article Dr. Arnold Pictet describes his breeding experiments with *Lasiocampa quercus*, especially discussing the number of moults undergone by the larvæ. Under the title, *Our Swiss Parnassiids*,

M. Eug. von Büren-von-Salis gives an account and summary of all the forms of the three European species of the genus *Parnassius*, pointing out the lines of variation and illustrating his notes by two admirable plates of M. Culot's. In the last article M. Culot diagnoses and figures a number of new forms of lepidoptera from Syria, and also a new form of *Melanargia galathea*.

Among the chief items in the last few numbers of the *Revue Mensuelle de la Société Entomologique Namuroise* we note the following articles of interest. (1) "A Coleopteron (*Aleochara bilineata*) whose larvæ live as Parasites in the pupæ of a Dipteron (*Anthomyia brassicae*)," by M. C. Cabeau; (2) "A Synopsis of the Neuroptera of Belgium," by M. R. P. Longin Noras, S.J.; and (3) The regular monthly article specially devoted to "Aberrations of Lepidoptera," contributed by Baron de Crombrugghe de Picquendaele, in which he records all the forms which he meets with for the first time in Belgium and bestows names on those he considers to be new to science. Unfortunately to these latter we have to say "Still they come."

"Current Notes" are as a rule contributed by the Acting Editor, who is responsible for them. Those contributed by the other Editors or by correspondents have initials attached.

SOCIETIES.

THE ENTOMOLOGICAL SOCIETY OF LONDON.—*February 7th.*—The Rev. F. D. Morice, M.A., President, in the chair. The President announced that he had nominated as Vice-Presidents for the present session Mr. A. H. Jones, Dr. Malcolm Burr, and Mr. J. H. Durrant. RARE COLEOPTERA.—Mr. W. E. Sharp exhibited specimens of *Carpophilus 6-pustulatus*, F., and *C. obsoletus*, Er., taken under bark of beech trees near Doncaster in October, 1912. GEOMETRID MOTHS OF THE GENUS ALETIS, AND THEIR MIMICS FROM THE NEIGHBOURHOOD OF ENTEBBE.—Prof. Poulton exhibited a large but not quite complete series of the members of this important combination, collected, between May 23rd, 1909 and September 14th, 1910, by Mr. A. Wiggins, D.P.M.O. of the Uganda Protectorate. HYPOLIMNAS (EURALIA) DUBIUS, BEAUV., AND H. (E) ANTHEDON, BOISD.—Prof. Poulton exhibited part of an all-*anthedon* family recently bred by Mr. Lamborn at Oni Camp seventy miles east of Lagos, from an *anthedon* female parent, and part of an all-*dubius* family also bred from an *anthedon* female. BUTTERFLIES A NATURAL FOOD OF MONKEYS.—Prof. Poulton read the following note received in a letter from Mr. W. A. Lamborn, November 17th, 1911:—"Our District Commissioner, Captain Neal, who occasionally spends a few days with us [at Oni Camp] tells me that he has several times seen 'dog-faced monkeys' (not baboons but probably mangabeys), squatting beside mudholes, such as butterflies of some kinds resort to in large numbers in the dry season, and catching them one after the other and eating them." THE ANAL TUFTS OF THE FEMALE GLUTOPHRISSA PROTRUDED DURING COURTSHIP.—Prof. Poulton drew attention to the following observation recently made by Mr. Lamborn at Oni:—"On December 27th, I saw a male *Glutophrissa saba* courting a female. She was resting on a leaf with wings expanded. Her abdomen was raised to an angle of rather

more than 45° to the thorax and two little tufts very similar to those possessed by male *Danainae* protruded from the anal extremity. A NEW SPECIES OF VESPERUS.—Dr. Malcolm Cameron exhibited a new species of *Vesperus*, *V. reitteri*, from Lagos, Portugal, and for comparison a specimen of *V. bolivari*, Rtt. HYBRID OPORABIAS.—Mr. E. A. Cockayne exhibited the following specimens of this genus: *O. christyi* from Ireland and Scotland, hybrid *O. christyi* ♂ × *O. dilutata* ♀, and *O. dilutata* ♂ × *O. christyi* ♀; *O. dilutata* from Scotland and Epping Forest, hybrid *O. dilutata* ♂ × *O. autumnaria* ♀, and larva; *O. autumnaria*, hybrid *O. autumnaria* ♂ × *O. filigrammaria* ♀, and *O. filigrammaria* ♂ × *O. autumnaria* ♀; *O. filigrammaria* from Yorkshire and Scotland. The following papers were read:—"On some hitherto imperfectly known South African Lepidoptera," by Roland Trimen, M.A., F.R.S. "On the Comparative Anatomy of the Genital tube in ♂ Coleoptera," by Dr. D. Sharp, M.A., F.R.S., and F. Muir, F.E.S. "Descriptions of New Species of Lepidoptera-Heterocera from south-east Brazil," by F. Dukinfield Jones, F.Z.S., F.E.S. "The Effect of Oil of Citronella on two species of *Dacus*," by F. M. Howlett, B.A., F.E.S. "On the Genera *Liothrips* and *Hoodia*," by Dr. H. Karny, of Elbogen, Austria; translated by E. A. Elliott, F.E.S., and communicated by R. S. Bagnall, F.L.S. "On the Early Stages of *Albulina pheretes*, a myrmecophilous Plebeiid butterfly," by T. A. Chapman, F.Z.S. "The food-plant of *Callophrys avis*," by T. A. Chapman, F.Z.S. "An experiment on the development of the male appendages in Lepidoptera," by T. A. Chapman, F.Z.S. "The Study of Mimicry (Batesian and Müllerian) by Temperature Experiments on two Tropical Butterflies," by Lieut-col. N. Manders, R.A.M.C., F.Z.S., F.E.S. A long and important discussion arose on many points in connection with the last paper, in which several Fellows took part.—*March 6th*, 1910.—The following gentlemen were elected Fellows of the Society:—Messrs. Harold Hodge, Chapel Place Mansion, 322, Oxford Street, W.; Samarenda Maulik, c/o Messrs. T. Cook & Son, Ludgate Circus, E.C.; Roland T. Smith, 54, Osbaldeston Road, Stoke Newington, N. A COLEOPTERON NEW TO BRITAIN.—Mr. Donisthorpe exhibited a specimen of *Catops montiragus*, Heer, new to the British list, taken at Nethy Bridge, on June 27th last, under a dead squirrel. Also *C. tristis*, Panz, for comparison, the nearest species previously known as British. THREE FAMILIES OF P. DARDANUS, BROWN, BRED FROM HIPPOCOON, F., FEMALES IN THE LAGOS DISTRICT BY W. A. LAMBORN.—Professor Poulton exhibited the first of these families and a part of the second. He stated that these three families were the first successful attempt, outside Natal, to breed *P. dardanus* from a known female parent. MONKEYS EATING BUTTERFLIES.—Prof. Poulton drew attention to the following letter, received by Mr. W. A. Lamborn from Captain H. V. Neal. "You have asked me about monkeys eating butterflies. This is very common as every native will tell you. I have seen it myself. The monkey runs along a path, sees some butterflies fluttering round some filth, goes very quietly, and seizes one by the wings, puts the solid part [body] into his mouth, and then pulls the wings off. The poor butterfly goes down like an oyster." DETERMINATION OF THE COCCID FOOD OF THE LARVA OF SPALGIS LEMOLEA.—Professor. Poulton said that he had now submitted to Professor R. Newstead some of the Coccids which

formed the food of *S. lemolea*, H. H. Druce. They had been sent in spirits by Mr. W. A. Lamborn and, although unfortunately badly attacked by fungus, had been placed without hesitation in the genus *Dactylopius* by Professor Newstead. EURYCELA DRYOPE, CRAMER, SHOWN TO BE DISTINCT FROM E. HIARBAS, DRURY, BY W. A. LAMBORN.—Professor Poulton exhibited examples of the above-named species, bred by Mr. W. A. Lamborn in the Lagos district. Mr. Lamborn had bred considerable families of *dryope* three times, and *hiarbas* once from known female parents. The *dryope* parents produced nothing but *dryope*, the *hiarbas* nothing but *hiarbas*. It was therefore almost certain that the two forms were distinct species, at any rate in the Lagos district. FURTHER CAPTURES OF PSEUDACRÆAS, ETC., ON DAMBA ISLAND, NEAR ENTEBBE, BY DR. G. D. A. CARPENTER.—Professor Poulton exhibited specimens captured on December 3rd, 10th and 17th, 1911, by Dr. Carpenter, in the primitive forest which still exists in the centre of Damba Island. BARONIA BREVICORNIS.—Mr. A. E. Gibbs exhibited two specimens of this scarce butterfly from Mexico. ABERRATIONS OF CENTRAL EUROPEAN RHOPALOCERA.—Mr. Douglas Pearson exhibited aberrations of the genera *Melitaea* and *Erebia*, amongst which were some striking forms of *E. stygne*, *E. ceto* and *M. varia*, and a remarkably variegated ♀ of *M. aurelia*, generally the most constant of the group. A NEW SUBORDER OF DERMAPTERA.—Dr. Jordan exhibited on behalf of Dr. Malcolm Burr a pair of *Arixenia*, n. sp., found in vast numbers in Java, for which it has been necessary to erect a new suborder. DIFFERENCE OF FOOD AND HABIT IN CLOSELY RELATED SAWFLIES.—The Rev. F. D. Morice drew attention to a note in the *Zeitschrift für wissenschaftliche Insekten-biologie*, by Dr. E. Enslin, on closely related species of sawflies, one of which was parthenogenetic and the other not. He said that *Croesus varus* and *latipes* have very similar yet distinguishable imagines, but quite different larvæ, and live on different plants; the larva of *varus* is green and lives on alder, that of *latipes* is black and lives on birch. Von Rossum reared *varus* imagines (all ♀s) from alder, which produced a parthenogenetic next brood of larvæ. These were fed on birch and became brown, and the resulting imagines showed a tendency to the coloration of *latipes*. The ♂ of *varus* is almost if not quite unknown, that of *latipes* is not rare. Von Rossum suggests that *varus* and *latipes* may be races of one species varying in characters according to their diet in the larval stage. It is curious that very many sawfly larvæ feeding on alder are almost exclusively known in the ♀ sex, while closely similar species living on birch (when bred artificially) always produce numerous males. A discussion on the effects of food arose, in which Messrs. Waterhouse, Cockayne and Fenn took part. Dr. Chapman observed that among the Psychids there are several cases of closely related forms, perhaps of the same species, of which one is parthenogenetic and the other (generally the more southern) is not so.

THE CITY OF LONDON ENTOMOLOGICAL SOCIETY.—*December 19th*, 1911.—THE BREEDING OF M. ATROPOS FROM THE EGG.—Rev. C. R. N. Burrows exhibited a *Manduca atropos* ♀ taken at Mucking, Essex, June 19th, 1911, with some of the unlaid ova, of which he had abstracted 218. Only one ovum was laid, and this was reared. ABERRATION OF E. CARDAMINES.—Mr. H. B. Williams exhibited a

♂ specimen of *Euchloë cardamines* from Abridge, Essex, with the black apical blotch continued as a narrow line along the outer margin. VARIATION SHOWN BY ANCHOCELIS PISTACINA.—Messrs V. E. Shaw, J. Douglas, and B. S. Williams exhibited their series of this species arranged to show its great variation. The named vars. were *serina*, *obsoleta*, *ferrea*, *lineola*, *rubetra*, *brunnea*, *unicolor-brunnea*, *renosa*, *pallida*, *canaria*, and *sphaerulatina*, the last-named being much commoner than the type, and var. *canaria* much the rarest. The specimens shown came from Finchley, Bexley, Epping Forest, New Forest, and Hunstanton. AGROTIS NIGRICANS VAR. MARSHALLINA.—Shown from Wicken, July, 1911, by Mr. B. S. Williams. PAPER.—Pupæ and cocoons of *Tapinostola hellmanni* and *T. concolor* were exhibited with photographs of anal appendages of the female moths to illustrate the notes read on them, by Mr. H. M. Edelsten.—*January 2nd*, 1912.—Messrs. J. Douglas and F. H. Southgate were elected to membership of the Society.—The meeting was devoted to the exhibition and discussion of *Rumicia phlaeas*—Mr. A. J. Willsdon, specimens from Deal, September, including two ab. *obsoleta* and a few ab. *caeruleopunctata*. Mr. W. E. King, abs. *alba*, *schmidtii*, *obliterata*, *infra-extensa* and an aberration combining abs. *obsoleta*, *caeruleopunctata*, and *magnipuncta* all from Chingford district, where he had noticed a partial fifth brood last season, and found some numbers of the larvæ in October. Mr. H. B. Williams, some 171 specimens from Missenden and district, including abs. *alba*, *eleus*, *addenda*, *caudata*, *suffusa*, *caeruleopunctata*, *parvipuncta*, *magnipuncta*, *basilipuncta*, *radiata*, *major*, and *infra-extensa*, and said that in comparing results of the record of the 1911 season with those of other years he was struck with the number of tailed and suffused forms which he attributed to the heat. Of 213 specimens taken in 1911, 24 had pronounced tails and most of those captured in August showed a trace of tails, the September specimens being less remarkable. As to suffusion, only one specimen slightly suffused was from the September captures, while 28 were among the August, of which 20 were ab. *initia*. Mr. A. W. Mera, 24 specimens taken at Three Bridges, Sussex, early in August, all of a somewhat dull colour approaching ab. *initia*. Mr. V. E. Shaw, ab. *obsoleta* from Darenth, ab. *radiata*, from Finchley, and abs. *eleus*, *suffusa* and *caeruleopunctata* from Bexley. Mr. C. Nicholson, three larvæ reared *ab ovo* of an ab. *caeruleopunctata*, and he mentioned how easily females were induced to oviposit, in confinement, by placing them in a large glass cylinder over growing food plant, and covering the top with mosquito netting. The showy stone crop *Sedum spectabile* was noticed to be very attractive, as many as nine specimens of *R. phlaeas* being seen on one plant in his garden at Hale End.—*January 16th*, 1912.—Mr. A. L. Mera was elected a member of the Society. ANNUAL "POCKET-BOX" EXHIBITION.—MELANIC E. BIPUNCTARIA.—Mr. L. B. Prout, specimens of a dark race of *Eubolia bipunctaria* from North Devon, taken on a dark soil, and approaching the Continental var. *yachtaria*, Frr., also a ♀ from Sandown, Isle of Wight, with the bands edging the central area strongly darkened. ANOSIA ERIPPUS VAR. ARCHIPPUS, ETC.—Mr. G. H. Heath, a specimen of *Anosia erippus* var. *archippus* found dead in the grass at Sandown, Isle of Wight, on the night of September 13th, 1908; *Xylomiges conspicillaris* var. *melaleuca* bred from a pupa dug in Worcestershire, September, 1897; and an *Acidalia incanaria* var. *bischoffaria* taken at Brockley, London, September 23rd, 1911, the first recorded

specimen of this melanic form taken in this country. DRAWINGS.—Mr. L. W. Newman, coloured drawings of many fine varieties and aberrations of Lepidoptera bred, captured and acquired by him during the past few years. VARIETIES OF A. GROSSULARIATA.—Mr. C. H. Williams, *Abraxas grossulariata*, abs. including *varleyata*, *nigrosparsata*, and *lacticolor*, Raynor. Mr. V. E. Shaw drew attention to the fact that this latter aberration should be known as ab. *deleta*, it having been named so by Mr. Cockerell in 1889, see *Entomologist*, vol. xxii., p. 99. This is the first ab. figured in Edward Newman's *British Moths*, p. 99. T. BONDII AND B. MURALIS.—Mr. A. J. Willsdon, a fine series of *Tapinostola bondii* collected at Folkestone in the grass, the specimens being in condition equal to bred ones; also a long and variable series of *Bryophila muralis* from Torquay. LIGHT D. CARPOPHAGA, ETC.—Mr. F. B. Cross, a bred series of *Dianthoecia carpophaga* from Lewes, all having a very light ground colour, and *Melitaea aurinia* from Ireland, two specimens of a brick-red ground colour, the usual straw coloured area being absent on uppersides, and on undersides the usual pale spots also absent. DARK N. CUCULLATELLA.—Mr. J. Douglas *Nola cucullatella* bred from Chingford, some showing a tendency towards melanism. VARIATION IN P. NAPI AND IN P. RAPÆ.—Mr. T. H. L. Grosvenor exhibited *Pieris napi* from first brood showing the following variation, (1) ♂ with ♀ markings, (2) gynandromorph, (3) ♂ with entire absence of black markings, (4) neural markings at base forming a green margin to secondaries, (5) ♀ with failure of black pigment, and (6) a ♀ specimen from the second brood with black discal spots in secondaries; and *P. rapae*, (1) a ♂ absolutely white, (2) ♀ of yellow coloration, (3) ♀ with black spots connected with black markings, (4) 2 ♀s with black spots only just discernable. He also exhibited *Argynnis euphrosyne*, a black banded ♀, a ♀ underside with pearl spots much enlarged, and a ♂ with pearl spots greatly reduced. S. LUBRICIPEDA AB. RADIATA, ETC.—Mr. A. W. Mera, *Spilosoma lubricipeda* ab. *radiata* and intermediate forms from Yorkshire; specimens of type and var. *radiata* from larvæ collected on Lincolnshire coast, and specimens from London district taken over a number of years, some very lightly marked, and others approaching var. *fasciata*, with *Triphaena comes* var. *clarkii*, var. *nigrescens* and intermediates from Forres. D. BIFIDA AND C. HYALE.—Mr. T. H. Stallman showed *Dicranura bifida* taken at light at Beulah Hill, London, S.E., July 4th, 1911, *Colias hyale*, ♀, Margate, August 10th, 1911, *Celastrina argiolus* ♂ having a row of well-marked spots on the underside margins of all four wings, from Holmwood, Surrey, and *Sphinx convolvuli* found at rest near North Foreland light-house, August 23rd, 1911. L. FAVICOLOR AND TERATOLOGICAL A. FILIPENDULÆ.—Mr. W. Crocker, a variable series of *Leucania favicolor* from North Kent Marshes, also a pair of dwarf *L. favicolor* he had reared from ova in October, 1909, the remaining larvæ dying after hybernation, together with *Anthrocera filipendulae*, specimens with a dark vein intersecting the upper median and sixth spots, and fairly broad borders to hindwings, also two yellow aberrations, and a teratological specimen having an underwing on left side in place of the usual forewing, the right side being normal, bred July, 1910. PUPÆ OF E. ALBULATA VAR. THULES GOING OVER.—Mr. V. E. Shaw, pupæ of *Eupithecia extensaria* from larvæ found on Norfolk Coast, series of *Emmelesia albulata* and its var. *thules* bred from Unst pupæ, 1911, more than half the pupæ going over another winter.

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Photo. F. N. Clark.

Amorpha populi, gynandromorph × 12½.

The Entomologist's Record, 1912.

UNDER EMBARGO



Photo. F. N. Clark.

Amorpha populi, ♀ and ♂, × 12½.

The Entomologist's Record, 1912.

The Season of 1911 in the Abertillery District of Monmouthshire.

By W. RAIT SMITH.

A few notes on collecting during the extraordinary season of 1911, in the Western Valleys of Monmouthshire, which are practically *terra incognita* entomologically, may be of some interest to entomologists. Up till August I shall, unfortunately, only be able to give approximate dates, as on August 15th I had a gladstone bag, containing the whole of my entomological outfit and my note books, with all my notes for the last seven years, stolen at Paddington, whilst on my way to Kent for my summer holidays. I can only hope the thief found my notes of sufficient interest to compensate him for the various articles of clothing which he no doubt expected to get.

During January and February insects, of course, were scarce, and nothing of much interest was taken. A few *Phigalia pedaria* ♂s were found at rest on tree trunks, principally beech, specimens approaching ab. *monacharia* were not uncommon. One or two *Hybernia rupicapraria* ♂s were taken on gas lamps at Gilwern. This generally abundant species is by no means common in this district, probably owing to the comparative scarcity of its food plant, the whitethorn. It will be as well to mention that these Monmouthshire valleys are only cultivated to a very small extent, by far the greater part of the ground is left to nature, and is covered with bracken, bilberry, and heather. A few years ago there were extensive woods in this district, but they have nearly all been cut down now; the few woods that are left are composed chiefly of larch and birch, with a few scattered oaks and beeches. There are extensive patches of oak scrub on the sites of former woods, but these are not productive collecting grounds, and produce little except swarms of *Tortrix viridana*, which occur in countless thousands. Similar patches of birch produce *Adela viridella* in almost equal numbers.

During February and March a close search was made for *Apocheima hispidaria*, but without success. *Hybernia leucophæaria*, mostly typical, but with a fair percentage of ab. *marmorinaria*, were common at rest on tree-trunks and fence-posts. *Hybernia marginaria* and *Anisopteryx aescularia* were decidedly scarce this year, not more than three or four of each species were seen. *Anisopteryx aescularia* six or seven years ago was exceedingly abundant in this district, but has been getting scarcer each year, and has now almost entirely disappeared. A single specimen of *Anticlea nigrofasciaria*, the first I have seen here, was taken at light at Gilwern, towards the end of March. I have not as yet found the allied *A. badiata* in these valleys. The ♂s of *Tortrix hymenana* were common in woods flying in the sunshine.

During April insects became much more plentiful, *Pieris napi*, the common "white" of the district, put in an appearance. A few fine *Pieris brassicae* were bred from larvæ found in my own small garden. A search was made at Pen-y-van and other places, where the holly flourishes, for *Celastrina argiolus*, but not a single specimen was seen. This species occurs here but is rare, not more than half-a-dozen examples have been taken during the last seven years. A few *Polyploca* (*Asphalia*) *flavicornis* were seen at rest on birch trunks; this is another species which is getting rarer each year. In the last week

of April the first *Saturnia pavonia*, a ♂, appeared. "The Emperor Moth" is very common on the heather-covered tops of the hills. I took a fine series of ♂s, last year, by "assembling" with a bred ♀. Some of the ♂s are very dark, and these dark specimens are smaller than typical examples. *Tephrosia crepuscularia* was fairly commonly found at rest on tree trunks, principally larch; this species is not so common here as it used to be; a blackish form similar to the example figured in South's *Moths of the British Isles*, vol. ii., plate 136., fig 8, used to occur, not uncommonly, in the Ha'fod Van Woods. These woods were cut down about three years ago, and I have not since seen this variety in the district. *Malenydris* (*Larentia*) *multistrigaria* was common amongst bedstraw; before 3 p.m. this species is very difficult to find, but after this time they crawl out of the undergrowth and sit about the top of the bedstraw and on clumps of grass, etc. A fine and varied series was taken ranging from pale examples to the blackish form ab. *nubilata*, Tutt, the ab. *virgata*, Tutt, was fairly common, but ab. *nubilata* was decidedly rare, and only three examples were taken. A few *Eupithecia vulgata* at rest on fence-posts, represented the "pugs." I was unable to do much "sallowing" this spring, but on the few occasions I was able to pay a visit to the few scattered sallow bushes we have here, I found *Taeniocampa gothica*, *T. stabilis*, *T. pulverulenta* and *Pachnobia rubricosa* were common enough, more especially the first species. Strangely enough *Taeniocampa instabilis* is decidedly scarce in this district for I have only come across three or four examples. A few *Brephos parthenias* were seen, on sunny days, at the beginning of the month, flying high over the birches.

From the beginning of May a long spell of fine, hot weather set in, which lasted, almost without a break, until October. Every available moment was seized for collecting, with, on the whole, satisfactory results. Sugar, until September, was an absolute failure, night after night producing nothing except a few *Xylophasia monoglypha*, *Noctua festiva*, *Hadena oleracea*, *Triphaena pronuba*, and a few other common *Noctuae*. Amongst the butterflies *Pieris brassicae*, *P. rapae*, and *P. napi*, especially the last species, were common everywhere, a few *Brenthis euphrosyne* were taken in the Llanock Woods at Crumlin, *Coenonympha pamphilus* was abundant everywhere and especially so at Pen-y-van. *Callophrys rubi* and *Nisoniades tages* were fairly common. *Hesperia malvae* is a very rare insect in this district. I have only seen one specimen, at Pont-llan-fraith, in 1909. A journey to this place in search of *H. malvae* and *Hemaris tityus*, a specimen of which was taken in 1909, was fruitless. Amongst the Geometers *Cabera pusaria* and *C. exanthemata*, *Lozogramma* (*Panagra*) *petraria*, *Ematurga atomaria*, *Perizoma* (*Emmelesia*) *albulata*, *Eupithecia vulgata* and *E. nanata*, *Xanthorhoë montanata* and *X. fluctuata*, *Coremia ferrugata*, *C. designata*, *Cidaria corylata*, *C. truncata*, and *Opisthograptis luteolata* were abundant in the woods and on the hillsides. A few *Gonodontis bidentata* were found at rest on grassy banks after dark. *Ematurga atomaria* is exceedingly abundant on the hills here, some of the ♀s are very dark and the ♂s range from light tawny to almost black examples. *Lozogramma petraria* occurs in the greatest profusion amongst bracken. During this and the following month the larvæ of *Lasiocampa quercûs* were very common amongst heather, some 50 or 60 were collected, but for some unaccountable

reason all, except four, died when full fed. Two or three afternoons spent in searching for *Drymonia chaonia*, which occurs sparingly here on oak trunks, were fruitless. *Mamestra* (*Hadena*) *thalassina*, *H. contigua* and *H. dentina* were taken, fairly commonly, at rest on tree trunks and stone walls. A number of larvæ of *Acronycta rumicis*, collected on sallows last year, produced some fine imagines this month, which is rather early for this species, including two or three of the form *salicis*. Beating bushes in the Llanock Woods at Crumlin for "hooktips" produced *Drepana falcataria* in fair numbers, but I did not find the allied *D. lacertinaria* this year. The open spaces in most of the woods gave *Euclidia glyphica* and *E. mi*. *Prothymnia* (*Phytometra*) *viridaria* and *Heliaca tenebrata*, especially the last species, were abundant on railway banks and other grassy places.

A visit was paid to Kewstoke Woods, near Weston-super-Mare in the middle of May. I found the first brood of *Pararge aegeria* were common but mostly rather passé, *Brenthis euphrosyne* was in the same condition. On some spindle bushes near the beach at Kewstoke Bay I found a batch of young *Malacosoma neustria* larvæ, which eventually produced a few imagines of a small reddish-brown type; these same bushes were covered with the webs of *Yponomeuta cognatellus* larvæ, two or three of these webs were brought home and an abundance of the perfect insects were bred in due course. *Nemophora swammerdammella* was very common in the woods. A few larvæ of *Cosmotriche potatoria* were found in ditches, and a variety of larvæ were beaten out of bushes in the woods. The day was dull and cloudy with occasional showers, so insects were scarce in consequence.

In June the first brood of the Pierids were going over, and by the middle of the month *Brenthis selene* had taken the place of *B. euphrosyne*. *Brenthis selene* is a very common insect in these valleys, and, I should say, outnumbers *B. euphrosyne* by at least six to one. I have examined some hundreds of specimens but have not yet found anything in the way of aberrations. In a small marshy field near Pont-llan-fraith *Melitaea aurinia* still occurs, but in sadly diminished numbers. I am afraid it will not be long before this local species is no longer found here. It occurred in abundance up till 1907, when I took a good series, but has rapidly diminished in numbers since. I cannot account for this. It certainly is not due to over collecting for, as far as I am aware, no one knows of the existence of this colony except myself, and I have purposely left the species severely alone since 1907. I bred a large wasp-like parasite from a pupa of this species in 1906. I was pleased to find half-a-dozen more examples of this insect on a piece of swampy ground, near Abertillery, at the end of this month. I have not previously seen *M. aurinia* anywhere except at Pont-llan-fraith, and I am hoping that this beautiful insect will succeed in establishing itself in this new spot.

A few worn *Euchloë cardamines* were still about at the beginning of the month. The *Satyrinæ* were represented by the two commonest species *Epinephele jurtina* (*janira*) and *Coenonympha pamphilus*. Very passé *Callophrys rubi* were keeping company with fine fresh *Rumicia phlaeas* and *Polyommatus icarus*, some of the ♀ s of the latter were very large and heavily marked with orange spots on the upper surface; one or two ab. *caerulea* were taken. *Hepialus humuli* was abundant on all grassy places. I have not as yet seen the common *H. lupulina* in this

district. *Hepialus hecta* swarmed in most of the woods. A few heavily marked *Hepialus fusconebulosa* (*velleda*) were taken at rest on grassy banks towards the end of the month. A small secluded valley near Abertillery gave *Adscita statices*, mostly of the *viridis* form, in plenty, this species is exceeding local here, I only know of two spots where it occurs. *Anthrocera filipendulae* and *A. trifolii* were in great numbers in two or three flourishing colonies. Specimens with confluent blotches were not uncommon, two or three *A. trifolii* ab. *minoides* were taken as were several examples of the *hippocrepidis* form of *A. filipendulae*. *Hippocrita jacobææ* was fairly common in gardens, but it is not a generally common insect in the district. On one hillside *Parasemia plantaginis* was very common, dashing madly about in the hot sunshine. This is an exceedingly difficult insect to take on the wing in such situations; about 4 p.m., however, they begin to settle down for the night, and the flight then is not nearly so rapid, so a good series was taken with comparatively little trouble. *Diacrisia sannio* (*russula*) appears to be a scarce insect here, a pair, ♂ and ♀, were beaten out of a clump of rushes in a small dingle within a few yards of where I took a pair last year. These four specimens are all I have seen of this species in these valleys. I have not seen anything of *Phragmatobia fuliginosa* this year, in spite of close searching for the larvæ on sunny days in the Spring. One larva was found, last year, crawling over heather, which ultimately gave a fine ♂. *Spilosoma menthastri* and *S. lubricipeda* were taken commonly enough at rest on railway banks and amongst rough herbage, as well as in flight at dusk. A single ♀ *Diaphora mendica* was beaten out of a patch of nettles in the Llanock Wood, Crumlin. This ♀ laid about sixty ova on the sides of the chip box in which she was confined. The larvæ fed up well and rapidly on dock and I have now about forty pupæ. This is the first example of *D. mendica* I have seen in this neighbourhood. On the slopes and on the heather covered tops of the hills the ♂s of *Lasiocampa quercûs* and *Macrothylacia rubi* were dashing about in considerable numbers, in their wild erratic flight; the latter being by far the commoner of the two species. About 8.30 p.m. the ♀s of *Macrothylacia rubi* put in an appearance, flying low down over the heather, they are much more easily taken on the wing than the ♂s.

With the *Noctuae* comparatively little was done, sugar, as I have mentioned before, was a complete failure. All my captures were taken either at rest or in flight at dusk. A solitary pupa, collected at the foot of a Lombardy poplar, near Wellingborough, Northants, in December, 1910, produced a fine *Palimpsestis octogesima* at the beginning of June. A word of warning to those who are fortunate enough to breed this species. At 9 a.m., when I first saw my specimen, it was in perfect condition and appeared to be resting quietly on the side of a breeding cage; thinking it would be advisable to leave it alone for an hour or two I did not look at it again till 1 o'clock; to my dismay I found that it had, between 9 a.m. and 1 p.m., managed to knock itself about rather badly, so I have now come to the conclusion that bred examples of this species should be killed as soon as possible after the wings are thoroughly dry.

Sugaring for *Habrosyne derasa* and *Thyatira batis* was a failure, both species are rather rare in this locality. *Acronycta psi* was common at rest on tree trunks, this species appears to prefer the

trunks of large beeches to any other resting place. *Acronycta menyanthidis* was taken in fair numbers at rest on stone walls, it has not been nearly so common this year as it is in some seasons. *Acronycta rumicis* was very common everywhere. Amongst the "wainscots" *Leucania impura* was very common at dusk over swampy ground, *L. pallens* decidedly scarce in comparison. Only one example of *Leucania lithargyria* was seen this year, a very fine fresh ♀ at rest on a clump of rushes. *Xylophasia rurea* and var. *alopecurus*, *X. hepatica* and *X. monoglypha* were all more or less common at rest on fence-posts. The last named species and *Triphæna pronuba* were the only two insects which occurred in any numbers at sugar. *Barathra* (*Mamestra*) *brassicae* as usual was common everywhere. A fine series of *Naenia typica* was bred this month from a batch of ova, accidentally collected with some dock leaves last year. The larvæ were kept indoors and fed throughout the winter on cabbage leaves. They are very hardy and easy to rear. *Apamea gemina*, *A. basilinea* and *A. secalis* (*didyma*, *oculea*) were taken in fair numbers on waste places overgrown with rank herbage, in company with numerous *Miana strigilis*, *M. fasciuncula*, *M. literosa* and *M. bicoloria*. One or two *Petilampa arcuosa* were found at rest on the rushes after dark. The Agrotids were decidedly scarce, the only species occurring in any numbers was *A. exclamationis*. I did not see a single specimen of the usually common *Agrotis segetum* this month. *Triphaena pronuba*, *Noctua augur*, *N. plecta*, *N. primulae* (*festiva*) and *N. rubi*, *Caradrina quadripunctata* and a few others were all common, but not so numerous in individuals as they are in some years. A few examples of *Dianthoecia capsincola* were taken at rest on stone walls. *Phlogophora meticulosa* as usual was abundant, but *Euplexia lucipara* was decidedly scarce, not more than two or three examples were seen. I did not see a single specimen of either *Aplecta nebulosa* or *A. tincta* this year, the former species, as a rule, occurs in the district in fair numbers, but *A. tincta* is rare, the only examples I have seen were three specimens I took last year at rest on larch and birch. At the beginning of the month *Mamestra* (*Hadena*) *glauca* was taken in fair numbers at rest on stone walls, in company with a few worn *Mamestra* (*Hadena*) *thalassina* and *M. contigua*. A single *Mamestra* (*Hadena*) *trifolii* was taken, flying at dusk over rough herbage. *Mamestra oleracea* was abundant everywhere. I did not notice *Cucullia umbratica* this year, as a rule a few are taken each year at rest on fence-posts and at the flowers of ragged robin at dusk. The same remarks apply to *Abrostola triplasia* and *A. tripartita*. *Plusia chrysitis* was fairly common at the bramble blossoms at dusk, and *Plusia festucae*, as usual, was the common *Plusia* of the district, and was to be taken at every patch of ragged robin. This beautiful insect is common throughout the district, whilst curiously enough the, in most districts, abundant *P. gamma* is quite scarce. At the beginning of the month the large cocoons of *Plusia festucae* are to be found, commonly enough, attached to rushes, nearly everywhere throughout the district. A few *Plusia pulchrina* were taken at bramble blossom at dusk. I have not as yet seen *P. iota* in these valleys. A few worn *Euclidia glyphica* and *E. mi* were still to be found up to the middle of the month.

Opisthograptis luteolata was common everywhere. *Metrocampa margaritaria* was to be beaten out of bushes in all our woods. *Boarmia*

repandata and *B. gemmaria* were both fairly common. I took a beautiful melanic variety of *B. repandata* at rest on the trunk of a large whitethorn; it was coal black, the only markings being the clear white sub-marginal lines. A few worn *Pseudoterpna pruinata* and a single *Tephrosia punctularia* were beaten out of long, rank grass in the Llanock Wood. *Acidalia imitaria*, *A. remutaria* and *A. aversata* were common enough in the woods, whilst *Acidalia fumata* positively swarmed amongst bilberry and heather on every hillside. *Euchoeca obliterata* were common in the shady parts of the Llanock Wood, they were in perfect condition at the beginning of June; this is a species which very soon gets *passé* and really good specimens are not often taken. *Cabera pusaria* and *C. exanthemata* were very abundant. *Semiothisa liturata* was taken freely at rest on beech trunks, this is a very wary insect and readily takes to flight at one's approach. *Lozogramma petraria*, *Ematurga atomaria* and *Melenydris didymata* swarmed amongst the bilberry and heather, the last species was a regular nuisance at dusk, some of the ♂s were very dark and heavily marked. *Ortholitha plumbaria* was common in most places. Typical *Abraxas grossulariata* occurred in every garden. A search, at the end of the month and during July, for *Entephria caesiata* was unproductive. I have only taken two specimens of this insect in these valleys, in both cases at rest on rocks at the tops of the hills. *Eupithecia lariciata* was very common amongst larch and *E. nanata* amongst heather. *Hydriomena furcata* (*elutata*) and *H. impluviata* were very common amongst sallow and alder. A few *Mesoleuca ocellata* and *M. albicillata* were beaten out of bushes, the former being by far the commoner of the two insects. *Eulype hastata* has been decidedly scarce this season, as a rule a fair number of specimens are taken each year by beating the birches in marshy places. *Xanthorhöe tristata*, as usual, swarmed nearly everywhere, this somewhat local species is probably, with the exception of *Melenydris didymata*, the most common Geometer in this district. *Xanthorhoë montanata* was abundant everywhere. *Coremia ferrugata* and *Amoebe viridaria* were abundant in every wood, *Coremia designata* occurred in most wooded places, *Camptogramma bilineata* was very common everywhere, *Cidaria fulvata* and *C. corylata* were to be beaten out of hedges and bushes in most places but were taken more commonly at dusk, *Anaitis plagiata* was not so common as usual this year, *Odezia atrata* swarmed in one spot at Crumlin and in another near Abertillery. This species is exceedingly local but very abundant where it occurs.

(*To be concluded.*)

Retrospect of a Coleopterist for 1911.

By Prof. T. HUDSON BEARE, B.Sc., F.R.S.E., F.E.S.

(*Concluded from page* 117.)

Articles and Notes.—A number of extremely interesting articles and notes have been published in the columns of the *Ent. Mo. Mag.* and the *Ent. Record* during the past year, and I now propose to discuss briefly these articles and notes.

Mr. J. Edwards has contributed two articles, one entitled "A Revision of the British Species of *Haliplus*, Latreille" (*Ent. Mo. Mag.*, vol. xlvii., p. 1), and the other "On *Ceuthorhynchus marginatus*, Payk.,

and Some Allied Species" (*loc. cit.*, p. 208). In the first of these two articles Mr. Edwards refers to the advantage of using as a differential character a certain extremely fine irrorate punctulation found on the elytra of many of the females of this genus, a character first pointed out by Gerhardt in 1877. Mr. Edwards also makes use, to a certain extent, of the male genitalia as a specific character. He gives a diagram showing the male genitalia of three species—*striatus*, *wehnckei*, and *immaculatus*. A comparative table of all the British species of the genus is given, and details of each of the species. Mr. Edwards has elevated to specific rank certain varieties, and gives a reason why he has adopted this course. I confess I cannot quite see my way to accept his conclusions. How difficult the whole problem is will be realised from the following facts. Mr. Newbery introduced *immaculatus*, Gerh., into our list a short time ago; Mr. Edwards points out that the insects supposed to represent this species were as a matter of fact *wehnckei*; then again in the latest European catalogue two of Mr. Edwards' species are considered to be varieties only, *heydeni*, Wehncke, is a variety of *ruficollis*, and *wehnckei*, Gerh., is a variety of *immaculatus*, Gerh. Herr Ganglbauer on the other hand, though he agrees with the European catalogue as regards *heydeni*, considers both *immaculatus* and *wehnckei* to be merely varieties of *fluviatilis*. All this disagreement clearly points to the fact that the characters, relied upon for separating the allied species in this troublesome little group, are very unstable. Mr. Balfour Browne, who has been working at the genus, and has introduced a species new to science—*Haliplus nomax* (*loc. cit.*, p. 153), apparently also disagrees with some of the conclusions to which Mr. Edwards has come, and states that he intends to write a paper upon this group of the genus. In discussing *fulvicollis*, Mr. Edwards says that both Gerhardt and Wehncke state that in this species the elytra of the female are without punctulation (I have Erichson's original description before me and there is no reference to this punctulation), but that his, Mr. Edwards', English specimens do have the apical portion of the elytra punctulate. The whole evidence as to the correct identification of these specimens is I must say somewhat doubtful. It appears to me very undesirable to take a description of a species and make it agree with a particular insect by simply asserting that the original describer omitted to notice certain important structural differences, especially when a continental specimen, received from a dealer, is taken as a type, though there is no evidence that the specimen was a type at all.

In his second paper, Mr. Edwards deals with a group of the genus *Ceuthorhynchus*, which has always been troublesome to workers at this genus. He discusses the value of the secondary sexual characters and their use in separating these closely allied species. He gives a table showing how the four species of the group may be separated, and is of opinion that three species occur in Great Britain, *viz.*, *marginatus*, Payk.; *punctiger*, Gyll.; and *mölleri*, Thoms. (= *rotundatus*, Bris.). Canon Fowler in his *Col. Brit. Isl.* was of the opinion that the last of these three insects was a doubtful species. Mr. Edwards also shows conclusively that *Ceuthorhynchidius distinctus*, Bris., is merely a form of *marginatus*, having the funiculus of the antennæ six-jointed, and that occasionally an aberration is met with having the funiculus of one

antenna six-jointed and the other seven-jointed (Rye many years ago came to the same conclusion); this latter form he proposes to call ab. *inaequalis*. Whatever opinion one may hold in regard to Mr. Edwards' views on specific and varietal distinctions, one can but congratulate him warmly on two admirable papers.

Dr. Joy contributed to the *Ent. Mo. Mag.* two important notes—(1) "A Note on Dr. Sharp's New Species of *Gabrius*" (*loc. cit.*, p. 80); and (2) "A Revision of the British Species of *Liodes*, Latreille (*Anisotoma*, Brit. Cat.)," (*loc. cit.*, p. 166). In the first of these two notes, Dr. Joy gives a table for separating these eight species without reference to the male genitalia, and in addition he gives a short description of each species, and notes as to the localities in which these species occur. I should like to ask Dr. Sharp and Dr. Joy how it has been determined which of these species is the original *trossulus*, Nordm. It is curious that Dr. Joy says that the species he calls *trossulus* is by no means common, and is very local, while on the other hand the insect which is called *nigritulus*, Grav., and which we have hitherto considered to be very rare, is on the contrary the commonest of the group, at any rate in England. It is surely impossible to decide from the original description of *trossulus*, which was drawn up from a mixture of several of these species, which insect should be called *trossulus*. Under these circumstances it would surely have been better to have given the name *trossulus* to the more common form. There is one point in Dr. Joy's table, which seems a most untrustworthy character, namely, the extrusion of the male organ. Surely this is merely an accidental result, due to shock at the instant of death, and is not a state of things which can exist in life as the normal condition.

In the second paper Dr. Joy says that he has been specially interested for some years in the genus generally called in this country *Anisotoma*, and that he has felt the need of a revision of the table which has hitherto been used for separating the species. Unfortunately Dr. Joy has not been able to come to an agreement with Dr. Fleischer, the recognised authority for this genus, in regard to several doubtful specimens, and some of the points must, therefore, be considered to be still unsettled. Dr. Joy sent four specimens to Dr. Fleischer, which the latter returned as *brunnea*, Sturm.; Dr. Joy, however, is of opinion that only two of these four specimens are true *brunnea*, and that the other two are *algirica*, Rye, and that the specimen taken by Mr. Donisthorpe at Oxford, and named *algirica* by Dr. Fleischer, is only a small *dubia*. Mr. Donisthorpe criticised this conclusion of Dr. Joy (*loc. cit.*, p. 256), and pointed out that Dr. Joy's *brunnea* possessed characters which were not consonant with the original description of Sturm. Dr. Joy, in reply to this note, maintains his original contention (*loc. cit.*, p. 276). In this article Dr. Joy describes an entirely new species *stenocoryphe* (*loc. cit.*, p. 167), on the strength of two specimens taken by Mr. W. E. Sharp near Forres. He deletes *obesa*, Schm., and *similata*, Rye; he considers the former is merely a variety of the very variable *dubia*, Kug., and that the latter is only a variety of *badia*, Stm. It may be mentioned that in an earlier note (*loc. cit.*, p. 10) Dr. Joy described a new species of *Anisotoma* under the name *davidiana*, which he stated at the time was closely allied to *dubia*, and that he had specimens of it from Southport and Deal. In the article at present under consideration, however, he said that he had modified his views, and considered this in-

sect was merely another variety of *dubia*, Kug. Two other changes of synonymy are made by Dr. Joy. He expresses the opinion that the insects we have hitherto called *Anisotoma scita*, Er., taken by Dr. Sharp in Scotland, and named by Rye, were merely forms of *dubia*, Kug. On the other hand the insect we have hitherto called *Anisotoma nigrita*, Schm., is what is now known on the Continent as *A. scita*, Er. The name *nigrita*, therefore, disappears from our list. It may be pointed out to prevent confusion that the insect known on the Continent under the name of *similata*, Rye, is, as Dr. Joy points out (*loc. cit.*, p. 110), a totally different insect from our *similata*, and that this continental insect will have to be renamed. Dr. Joy suggests *fleischeri* as a suitable name. In addition to giving an exceedingly good table of the British species, Dr. Joy gives detailed descriptions of several species of the genus, and notes as to the localities in which these have been taken. The paper is an extremely good one, and will certainly prove of great help to many collectors who have hitherto found this genus a stumbling-block, and it is to be hoped that Dr. Joy's work will lead to more attention being paid to this genus, so that the distribution of the species may be more accurately determined.

Another short note by Dr. Joy (*loc. cit.*, p. 132) deals with the var. *picipennis*, Heer, of *Quedius attenuatus*, Gyll. Dr Joy gives a useful table for separating the allied species of this group of the genus *Quedius*.

Dr. Sharp has contributed a series of valuable articles during the past year to the pages of the *Ent. Mo. Mag.* In his first paper, entitled "*Bledius pallipes* and its Allies in Britain" (*loc. cit.*, p. 31), Dr. Sharp says that much confusion has arisen owing to the fact that Gravenhorst included several species under the name of *pallipes*. In this country we have five allied species, *viz.*, *pallipes*, Grav; *fuscipes*, Rye (which is synonymous with the later described *rastellus*, Schiodte); *terebrans*, Schiodte; and, lastly, two species new to science, and now described for the first time by Dr. Sharp, *annae* and *filipes*. Full notes are given as to the localities, and as to the characters which separate these allied species.

In his second note, entitled "*Bledius hinnulus*, Er. (or *diota*, Schiödte), in Britain," Dr. Sharp draws attention to the fact that in this country we have hitherto confused *hinnulus* with *bicornis*, Germ. (*loc. cit.*, p. 34). *Hinnulus* has been found in abundance at Wells, by Mr. Brewer, Dr. Joy, Mr. Donisthorpe, and the author. Dr. Sharp also deals with the point as to whether *hinnulus*, Er., is the same insect as *diota*, Schiödte, and comes to the conclusion that it is.

In the third paper (*loc. cit.*, p. 57), entitled "*Bledius fracticornis*, and its British Allies," Dr. Sharp says that he can assert that certainly three species of this group occur in Great Britain, *viz.*, *fracticornis*, Er., which is an uncommon species; *laetior*, Muls. and Rey, also apparently a rare species; and *femoralis*, Gyll., which is fairly common in the south of England. In addition Dr. Sharp says that he has seen a male specimen in Mr. Champion's collection, and that he has a female specimen in his own collection, which he cannot reconcile with the descriptions of any of the above three species, and he thinks it possible, therefore, that we may have a fourth undescribed species of this group occurring in Great Britain.

Mr. G. C. Champion has contributed several interesting articles

and notes to the *Ent. Mo. Mag.* In his first note (*loc. cit.*, p. 16), on the Meloid-genus *Hornia* and its allies, he deals with a remarkable Sitarid, bred from pupæ found in the cells of an *Anthophora* at Mogador, Morocco, belonging to a newly described genus *Allendesalazaria*, Escalera, which is apparently closely allied to the American genus *Hornia*, Riley.

In a second note, entitled "Note on the Methods used to obtain minute blind *Staphylinidae*" (*loc. cit.*, p. 138), Mr. Champion gives a description of the methods employed by Signor Dodero to obtain the minute blind *Staphylinidae* which live in the dry earth at the foot of old tree trunks, or beneath deeply embedded boulders.

In a third note (*loc. cit.*, p. 214) Mr. Champion states that he has come to the conclusion that the foodplant of *Nanophyes gracilis*, Redt., is water purslane (*Peplis portula*).

In an article entitled "A Trip to Sardinia in 1910" (*loc. cit.*, p. 219), Mr. Champion gives a strikingly interesting account of a collecting trip in Sardinia with MM. Dodero and Solari, which extended from May 27th to June 19th. A number of interesting species of Coleoptera were taken. The whole article is one of great interest.

Lastly, in a note entitled "Note on the Forms of *Galeruca tanaceti* L., occurring in Britain" (*loc. cit.*, p. 258), Mr. Champion says that there is a possibility that *G. pomonae*, Scop., which has a black aberration *anthracina*, Weise, may occur in this country, its foodplants being *Centaurea jacea* and its allies, and *Knautia arvensis*.

In the October issue of the *Ent. Mo. Mag.*, p. 241, Mr. J. R. le B. Tomlin and Mr. W. E. Sharp began a series of notes on the British species of *Longitarsus*, Latr. The authors point out that this genus remains to coleopterists perhaps the most confused in synonymy and bewildering in specific differentiation of all the genera of the Coleoptera. They discuss the reasons for this state of things, and point out how characters which are usually so valuable in Coleoptera are in this genus quite unreliable. To assist in the discrimination of the species, they divide the genus into six sections. Two of these sections, *viz.*, those which contain (*a*) unicolorous black species, and (*b*) black species with distinct testaceous or reddish markings are dealt with in the paper as far as it was published at the close of the year. Two changes in synonymy are made:—*Longitarsus pulex*, Schr., should be known as *L. obliteratus*, Rosenh.; and *L. ater*, F., should be known as *L. parvulus*, Payk. The species *L. niger*, Koch, is dropped entirely. If one may form a judgment from the portion of these notes which has so far been published, it is quite evident that the genus *Longitarsus*, which has hitherto been much neglected by coleopterists, owing to the difficulty of identifying species, will in the future prove a much more interesting genus for the field worker. Though no amount of description will make this puzzling genus an easy one, still the removal from our lists of mere names will go a long way towards reducing the difficulties which have hitherto beset the coleopterist who has attempted to work out the names of his captures.

Mr. Tomlin has published a further instalment of his "List of Coleoptera found in Herefordshire," No. 4 (*loc. cit.*, p. 271). The new list includes a considerable number of species new to the county.

Mr. J. H. Keys in an article entitled "*Barypithes duplicatus*, n. sp.,

and Notes on other British Members of the Genus" (*loc. cit.*, p. 128), gives a history of the discovery of this new species, with particulars of its capture, and a description of the characters which separate it from *pellucidus*, Boh. The article is illustrated by a plate, which gives representations of both male and female forms, and detail drawings of the legs. In concluding his article Mr. Keys gives a table for separating the five species of this genus now found in this country, with some notes as to their general distribution. Commander Walker has recently taken *B. pellucidus*, Boh., at Oxford. Mr. Keys is to be congratulated on disentangling this troublesome little problem.

Several interesting notes with regard to life-histories have appeared during the year. Mr. J. Collins (*loc. cit.*, p. 248) published some notes on the early stages of *Haemonia appendiculata*, Panz., with illustrations of the larvæ and pupæ. In August, 1911, while working for this insect in a tributary of the river Cherwell, he discovered both larvæ and pupæ, which he eventually bred out. They occurred chiefly on *Potamogeton pectinatus*.

Mr. C. F. Selous published (*loc. cit.*, p. 86) an interesting article entitled "A Preliminary Note on the so-called Carrion-feeding Coleoptera," in which he gave a record of observations made whilst watching small carcases placed out in a field on open ground, and noting the visits paid to them by various species of Coleoptera. He states that he is not convinced that the burying of the carcases is due only to the *Necrophori*, or that it is a purposive act. I may mention that about fifteen years ago, when living at Richmond, I made a series of experiments with the bodies of mice. These were placed out early in the morning on a fairly hard patch of ground in my garden, before I left for my duties at the University; on my return in the evening, I always found that the carcases had been entirely buried, and that they were lying in a hole shaped very much like a miniature grave, with loose soil on the top, and that the loose earth covering was never less than about half an inch in depth. I found male and female *Necrophori* in each case with the body which had been buried. Certainly, therefore, in these cases the burial was the work of the insect, and the disappearance of the corpse below the ground was not in any way facilitated by decomposition.

Mr. H. Britten gives a list of the Coleoptera which he has captured in underground wasps' nests during the last two or three years in the neighbourhood of Salkeld Dykes (*loc. cit.*, p. 89). *Quedius puncticollis*, Th., seemed to be a regular inhabitant of all these nests.

Mr. Donisthorpe adduced evidence, which seems very conclusive, to show that *Trichonyx sulcicollis*, Reich., is in part myrmecophilous, and that *T. märkeli*, Aubé, is a true myrmecophilous insect (*loc. cit.*, p. 67).

Mr. E. G. Bayford in an article entitled "Electric Light as an Attraction for Beetles and other Insects" (*loc. cit.*, p. 157), gives a description of the captures he has made at electric light street lamps at Barnsley, Yorks. Curiously enough, species of *Necrophori* are much in evidence, showing that these insects fly readily at night when seeking for food.

In the *Ent. Record*, Mr. Donisthorpe, in his "Myrmecophilous Notes for 1910" (pp. 10, 58, and 169), deals with the various species of Coleoptera and other insects, etc., taken in ants' nests during 1910.

He describes a number of valuable experiments he had made with certain of these insects in his observation nests. These notes are a further testimony to the thorough and praiseworthy manner in which Mr. Donisthorpe is tackling this important problem as to the relation between ants and the dwellers in their nests.

The only other article to which I need refer is Dr. Longstaff's account of three weeks in the Sudan (*Ent. Mo. Mag.*, xlvii., pp. 119 and 194). Though Dr. Longstaff paid but little attention to the Coleoptera, he has given some interesting notes as to some of the more striking species which occur in the neighbourhood of Khartum and the surrounding country. Mr. G. A. K. Marshall has described (*loc. cit.*, p. 207) a new species of *Baris* under the name of *lorata*, from the Sudan.

Two parts of the *Transactions of the Entomological Society of London* for 1911 have been issued up to the close of the year. In Part II. there are two papers dealing with Coleoptera. The first, illustrated by two plates, one of them coloured, is by M. Henri Boileau; it contains descriptions of several new species of *Lucanidae* in the British Museum collections. Two species of *Sphenognathus* from Bolivia; two species of *Lucanus* from Burmah and Assam respectively; one species of *Rhaetulus* from Siam; two species of *Hemisodorcus* from Perak and Burmah respectively; one species of *Gnaphaloryx* from Sumatra; and two species of *Nigidius* from Rangoon and East Africa respectively are described. Both the species of *Sphenognathus* and of *Lucanus* as well as the species of *Rhaetulus* are well figured in the two plates.

The second paper is by Mr. E. A. Elliott and Mr. C. Morley and is entitled "On the Hymenopterous Parasites of Coleoptera. First Supplement." Since the publication of their original paper in the *Transactions* in 1907, much additional matter has come to the knowledge of the authors; this paper contains this additional matter. It should be read in conjunction with the original paper, with which it is uniform and concurrently numbered. The paper embodies the results of most painstaking investigations through the works of a number of well-known entomologists, and brings together into a convenient form for reference a mass of field and other records hitherto scattered throughout the pages of the numerous works which the authors have consulted. The thanks of all entomologists are due to the authors for their labours, and for the clear and admirable way in which they have arranged the records so as to facilitate future reference.

Excellent progress continues to be made with the *Coleopterorum Catalogus* edited by Schenkling, and published by Herr Junk. Parts 25-38 were issued during the year, and Part 39 has just come to hand. The following families amongst others have been dealt with:—*Pselaphidae; Tenebrionidae*, 3rd and 4th sections; *Staphylinidae*, 2 sections; *Cissidae; Chrysomelidae-Hispinae; Anthicidae; Scarabeidae-Coprinae*, 1; *Cerambycidae-Cerambycinae.*

Professor Blatchley, of Indianopolis, U.S.A., has published what he calls *An illustrated descriptive catalogue of the Coleoptera or beetles (exclusive of the Rhyncophora) known to occur in Indiana:* it is, however, a treatise extending to 1388 pages, illustrated with 590 figures of the more important species (2535 are dealt with), and with many diagrams of structural details; this volume is another illustration of the thorough way in which our American cousins are dealing with the Natural History of their great country.

In the *Annals of Scottish Natural History*, July and October, 1911, appeared a paper by Mr. F. Balfour-Browne, "On the Aquatic Coleoptera of the North Ebudes." In September 1910, Mr. Balfour-Browne spent a week collecting in Skye, near Broadford, and in the island of Eigg, and this paper gives an account of the results of his work in the field, and of the investigations he has made into other records of similar work carried out in the North Ebudes. The paper is characterised by the thoroughness for which the author is so well known, and is an invaluable contribution to our knowledge of the fauna of this group of islands lying off the west coast of Scotland.

I think we may congratulate ourselves that 1911 was a year fruitful of good work in all branches of the subject.

Collecting Notes for 1911.

By A. RUSSELL, F.E.S.

In concluding my notes for the season 1910 I remarked that if all went well I should have a fairly busy time when the spring of 1911 arrived, and in this expectation I was not disappointed, a succession of insects emerging from my breeding cages from the middle of February to the end of June. In February a nice series of *Pachnobia rubricosa* emerged, and in March a long and somewhat variable series of *Selenia bilunaria*, both species from ova obtained from Oxted females. At the end of March a visit to sallows at Chislehurst was disappointing, owing to scarcity of insects. The only Tæniocampids to put in an appearance were *Taeniocampa incerta* and *T. stabilis*. *Hybernia progemmaria* was found at rest on the fences, and *Asphalia flavicornis* was taken, but both were a trifle worn. A few *Scopelosoma satellitia* and *Orrhodia* (*Cerastis*) *vaccinii* were also met with. A visit to Bagshot on Easter Monday for *Brephos parthenias* resulted in several males and one female being taken, the former in fair condition only. A male *Lobophora lobulata* was also secured. During April a good series of *Tephrosia punctularia* was bred from ova obtained from a Berkshire female, and a short, but nice series of *Celastrina argiolus* from ova and young larvæ found the previous September on ivy at Cuxton. In all twenty-nine pupæ were obtained, of these sixteen produced imagines and the remainder ichneumons, rather a disappointing result. During April also two *Lobophora viretata* were bred from wild larvæ, one found at Cuxton and the other at Boxhill. Following upon these came a very satisfactory series of *Aplecta prasina* (*herbida*), from ova obtained from a female taken at Polegate; some fine *Notodonta ziczac* from Hampshire and Berkshire larvæ; *Demas coryli* from Netley Heath larvæ, and a long series of *Clostera reclusa* from ova obtained from a Polegate parent. During the first fortnight in May the following amongst other insects were bred, *Amorpha populi*, *Mimas tiliæ*, *Gnophria rubricollis*, *Dasychira pudibunda*, *Drepana lacertinaria*, *D. falcataria*, *Odontopera bidentata*, *Zonosoma pendularia*, *Hydriomena* (*Hypsipetes*) *impluviata*, *Melanippe sociata*, *Coremia ferrugata*, *C. unidentaria*, *Phibalapteryx vitalbata* and *Cidaria corylata*. A visit to woods in Hampshire, on 13th May, found *Brenthis euphrosyne* just out and *Euchloë cardamines*, *Hesperia* (*Syrichthus*) *malvæ* (*alveolus*), and *Tephrosia punctularia* in good condition. Between the middle and end of May the breeding cages yielded *Smerinthus ocellatus*, *Hemaris*

fuciformis, *Euchelia jacobææ*, *Arctia villica*, *Stauropus fagi*, *Notodonta dromedarius*, *Cymatophora ocularis*, *Mamestra persicaria*, *Caradrina morpheus*, *Noctua plecta*, *Dianthoecia conspersa*, *D. capsincola*, *D. cucubali*, *D. carpophaga* (some variable forms), *Mamestra* (*Hadena*) *thalassina*, *M. contigua*, *Anarta myrtilli*, *Amphidasis betularia*, *Nemoria viridata*, *Ematurga atomaria* (one female of male coloration), *Bupalus piniaria*, *Eupithecia venosata*, *E. nanata*, and *Eucosmia undulata*. A day in Sussex at the end of May disclosed *Brenthis euphrosyne* and *Nisoniades tages* going over, *Coenonympha pamphilus* and *Rumicia phlaeas* just out, *H. malvae*, *Phytometra aenea*, *Euclidia mi*, *Venilia macularia* and *E. atomaria* in good condition, while *Panagra petraria* was worn. A visit to Northampton Woods in early June was unsuccessful as far as *Cyclopides palaemon* and *Strymon pruni* were concerned, but *Abraxas sylvata* (*ulmata*) was met with in fair numbers and in excellent condition. Larvæ of *Ruralis betulae* were obtained by beating the blackthorn, and part of a nest of *Lachneis lanestris* larvæ was secured. During the first fortnight in June insects continued to emerge from the breeding cages, including a few *Melitaea cinxia*, a short but nice series of *Cidaria pyraliata* (*dotata*), and half a dozen or so *Plusia moneta*, the larvæ of which were obtained from delphinium growing in the garden. The third week in June I left town for Shanklin for the annual holiday. The weather at the time was somewhat broken, but very soon settled down for a long spell of extreme heat. Shortly after arrival the downs above Shanklin were visited. *Coenonympha pamphilus*, *Polyommatus icarus* and *Augiades sylvanus* were all found worn, but *Epinephele jurtina* was in fair condition. On the heather on Boniface Down, part of a nest of *Saturnia carpini* larvæ was obtained and also some larvæ of *Lygris* (*Cidaria*) *testata*. The thistles seemed to suggest larvæ of *Pyrameis cardui* but despite a careful search not one was met with. My opportunities for collecting at night time were very limited, but an occasional visit to the lamps showed that insects were fairly in evidence, though principally of the commoner kinds. Two or three visits were made to the America Woods at the back of the town where *Epinephele jurtina* was found in abundance, *Adopaea* (*Thymelicus*) *flava* (*linea*) in fair quantity with *Melanargia galathea* and *Aphantopus hyperanthus* in limited numbers. The landslip near Bonchurch yielded larvæ of *Theretra porcellus* and *Xanthorhoë* (*Melanippe*) *galiata* on the bedstraw and cocoons of *Anthrocera filipendulae*. The weather became hotter and hotter, and "an open confession being good for the soul," I must say I became slacker and slacker, until I practically ceased to do any collecting at all. I did however buckle to before leaving the Island and get to the *Melitaea cinxia* ground, where I secured a nest of the larvæ.

On my return to Purley, in the middle of July, I found several of the *Lachneis lanestris* larvæ still feeding and looking exceedingly healthy; they promised to make fine moths, and have since done so, that is to say, all those that emerged this Spring. On my way to the station on two or three occasions, *Pieris rapae* was seen swarming in the Godstone Road, seeking the moisture produced by the watering, the large number of butterflies seen on the wing at one time attracted general attention from the passer-by. The weather continued very hot, and after a day in town and a stifling railway journey home, one

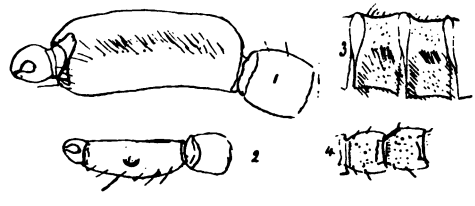
felt inclined to do little more than rest on reaching the cool of the garden. On the evening of August 3rd, however, my dormant energy was immediately aroused by friend Joy dashing in with a *Phryxus livornica*, which he had just netted in his garden a little way down the road. The net was once more requisitioned, and for several evenings watch was kept in the neighbourhood for other *P. livornica*, but none were met with. The specimen taken was caught hovering over white phlox; it was in fairly good condition, one wing being slightly chipped. *Rumicia phlaeas* now made its appearance, and, as was the case elsewhere, was common in the district. During August some nice imagines were bred from the *Ruralis betulae*, and *X. galiata* larvæ obtained earlier in the year. A visit to Oxted on the August Bank-holiday resulted in *Vanessa io* being seen and taken. On August 24th Oxshott was visited for *Agrotis agathina* and two were obtained in fair condition. A trip to Richmond Park at the end of the month resulted in *Heliophobus popularis*, *Charaeas graminis*, *Noctua glareosa*, *Citria cerago*, and other species being taken. A flying visit to Haslemere at the beginning of September was not very productive, but a few pupæ of *Agriopis aprilina* were dug from under oak. My season practically concluded with a short holiday at Lowestoft at the end of September. Here *Rumicia phlaeas* was again in evidence, *Pyrameis atalanta* was seen at the ivy blossoms in fine condition, and *P. cardui* and *Pararge megaera* (second brood) were met with, worn. *Agrius convolvuli* was reported to be in the district, but I failed to meet with it. Pupa digging was resorted to, but nothing very special was taken in this way, nine-tenths of those dug being *Taeniocampa incerta*.

On a Gynandromorphous Amorpha populi. (*With 2 plates.*)

By T. A. CHAPMAN, M.D.

The Rev. C. R. N. Burrows has mounted the head and genitalia of a gynandromorphous *A. populi*, given to him by Mr. L. W. Newman, and has permitted me to examine the specimen. *Amorpha populi* appears to afford more gynandromorphs than any other Lepidopteron. Herr Bartel collected records of 73 in 1900, Tutt in 1902 refers to records of 79 specimens, and hardly a year passes without a record of one or more examples. It does not, however, happen that I have found any detailed account, or figure, of the genitalia of a specimen.

In Mr. Burrows' specimen the left side is male the right side female. The head shows a left ♂ antenna and a right ♀ one. The



Camera outlines of (1) left (♂) palpus, (2) right (♀), (3) Two joints of left (♂) antenna, about joints 13 or 14. (4) Two joints from right (♀) from about same position. × 15.

labial palpi differ largely in size, the left being 4·8mm. long, the right only 2·6mm. The left is even wider in proportion, but measurement would be misleading as the 2nd joint has been torn in mounting.

The structure of the genitalia will be better understood by reference to the photographs (by Mr. F. N. Clark) of Mr. Burrows' specimen, and of the normal ♂ and ♀ structures of normal specimens, which are presented herewith × 12½. I have numbered the parts so as to show the correspondences.

It is curious that whilst there appears to be a complete ♀ side (left), there is not only the other (right) side (completely) ♂, but male structures of the left (or female) side are also represented. This is as in photograph, which happens to reverse the specimen.

Thus there are both branches of the uncus marked (1), and I have chosen as a normal (?) male for comparison, one with two branches unequal, which is not common. There are also the clasps of both sides, both valve (3) and harpe (4) being of fairly normal development in both cases. The aedœagus is not perfect, but its deficiency is not on one side. The distal portion (5) seems fairly normal (both right and left sides), but the basal portion (6) is shrunk and connected with the distal end by a very narrow neck. The female side is represented by the terminal flap of the ovipositor (2) with its rod (7), and by the portion of the plate of the 9th segment, which (see Pl. VI) is always a slight structure, but the rod (9) belonging to it is fairly normal. The vaginal structures (8), being only those of one side, are twisted out of very recognisable form.

It would perhaps have been even more interesting had the inner structure, ovaries, tubes, etc., been preserved, but they became no doubt injured and lost in the process of maceration.

DESCRIPTION OF PLATES V. and VI.

PLATE V.—Appendages of gynandromorphous *Amorpha populi* × 12½.

PLATE VI.—Upper ♀, lower ♂, appendages of *Amorpha populi* × 12½. The two divisions of the uncus (1) are unequal in the ♂ specimen, an interesting abnormality, otherwise the specimens are normal, and suitable for comparison with the specimen on Pl. V.

Leptosia duponcheli var. aestiva at Digne.

By W. G. SHELDON, F.E.S.

It was in the early days of August, 1906, I had landed at Nice in the morning, after a rough crossing from Ajaccio, and having travelled all day up the beautiful but stiflingly hot Gorge of the Var and across the Col de Vergons, had welcomed with relief the hospitable doors of the "Boyer-Mistre," at Digne. Dinner was being served on my arrival, and after a hasty wash I took the only vacant seat, about half way down the long table in the "Salle-à-manger." I was tired, and my powers of observation were dulled, and beyond noticing that my right hand neighbour was one of the largest men I had ever seen, I did not inspect my fellow diners. I was a course or two behind the others, and just as the dessert was reached my right hand neighbour retired. I turned towards the vacant seat to annex a peach from a dish on the table, when an expression burst forth from the occupant of the next chair, "Hallo, what on earth are *you* doing here?" and, looking towards him, I found I was addressed by the late Editor of this maga-

zine, Mr. J. W. Tutt, who was coming south as I was going north. It was a dramatic method of meeting, and a very welcome one to me, for Tutt's personality was to every one, at all times, an interesting one, and it was doubly interesting to me just then, for I had not heard a word of my mother tongue for several weeks.

This meeting led to a day's collecting together and much talk; amongst other matters we discussed the genus *Leptosia* that we found everywhere common. Tutt maintained that some of them, which were without dark markings on the underside, were *L. duponcheli* var. *aestiva*, Stgr.

The next day, my friend having gone still further south, I enlisted the services of the local professional entomologist Victor Cotte, and asked him in the course of our wanderings, what the summer brood of *L. duponcheli* was like. Cotte said it was scarce at Digne, but that he had taken a specimen a few weeks before. This I subsequently purchased and have now. It is indistinguishable from the spring form. I therefore concluded that Tutt was wrong, for Cotte knows the species to be found at Digne well, and is usually to be relied upon.

There the matter rested until last month, when happening to pick up Wheeler's *Butterflies of the Alps*, I found that the author describes var. *aestiva* as "with yellowish undersides." This shook my faith in Cotte's specimen, and after thinking the matter over, I took from my continental series of *L. sinapis* all the specimens collected at Digne during four visits I had made to that town, placed them in another drawer and studied them carefully. Almost at once I found a male that in the shape of the front wings agreed exactly with spring *L. duponcheli*, but which was entirely without dark markings beneath, and a further search showed that I had seven more specimens, five males and two females of this form, all these examples were taken from between July 11th and 16th, 1904, and were, I now feel pretty sure, *L. duponcheli* var. *aestiva*. I accordingly took them, with all the other hitherto supposed *L. sinapis* to the British Museum, and compared them with the series of both species in the National Collection. Amongst the *L. duponcheli* there I found eight examples which were without dark markings beneath, but these were *not* labelled var. *aestiva*. I also found amongst the *L. sinapis*, which were in another drawer, two more of this form of *L. duponcheli*, which were labelled var. *aestiva*. All these ten specimens were from Asia Minor. After comparing them with my examples captured at Digne I could only conclude that these were identical.

L. duponcheli var. *aestiva* is evidently common and well distributed at Digne, my examples coming—three from the Eaux Chaudes valley, one from La Collete, and four from the right bank of the Bléone, above the bridge leading to the railway station, which I have always found one of the most prolific localities for the spring emergence. Presumably, it was more abundant than *L. sinapis* in July, 1904, for I find I only brought back three males and two females of the latter species, which were respectively var. *diniensis* and var. *erysimi*, both of which forms were more attractive to the eye than the specimens I have since found to be var. *aestiva*.

The chief distinction between var. *aestiva* and *L. sinapis* var. *diniensis*, and which serves to distinguish them at a glance, is the shape of the front wings, which exactly resembles, in this respect, examples

of the spring brood in both sexes, with the comparatively straight costa and square apex, as compared with the much more rounded costa and apex of *L. sinapis* var. *diniensis*.

In the males the apical spots are as pronounced as in the spring brood, but they are not so large. Underneath, five of my examples are entirely without dark markings, though the other has a slight indication of a transverse band in the centre of the hindwings. The area at the apex of the front wings, which on the upperside is represented by the dark blotch, is of a pale lemon yellow, and the same colour obtains on the base of all the wings below and above.

The two females have the dark apical blotch showing very slightly on the upper surface, much more slightly than is the case in the spring brood. On the underside they have the central band on the hindwings showing rather prominently, otherwise they exactly resemble the males.

A good point of distinction between these two species is the antennæ; in *L. sinapis* the base of the club-head is white in front, this white patch is wanting in *L. duponcheli*.

Staudinger, who named var. *aestiva* from specimens taken by him at Amasia in Asia Minor—where he states that it was abundant—described it in *Horae Societatis Entomologicae Rossicae*, vol. iv., p. 222. His description of the Amasia specimens, and the examples in the National Collection, agree pretty closely with my Digne captures, except that the surface of the wings, both above and below, is a little more yellow in the *aestiva* form.

Obviously the example I purchased from Cotte was a belated spring emergence.

Since writing the above my friend Mr. P. W. Abbott, who accompanied me to Digne, in July, 1904, informs me that he brought back eight examples of *Leptosia*, and that after seeing my var. *aestiva*, he finds seven are that form, and only one is *L. sinapis*.

A Fortnight at Gavarnie. Hautes-Pyrénées.

By G. T. BETHUNE-BAKER, F.L.S., F.Z.S., F.E.S.

A twelve hours' journey brought us from Mende to Toulouse, where we arrived at about 8 o'clock in the evening, and as we had to be up betimes in the morning we were glad to go straight to bed after dinner. No doubt it was a very bad thing to do, but it did not seem to have had any ill effects in our case. We were down at 5.30 for our *petit déjeuner*, which was enjoyed greatly in the street before people generally were astir, and whilst the air was delightfully fresh. Our first change was at Lourdes, where we had two and a half hours to wait. Half an hour of this sufficed for a good meal, after which I left my friend (Mr. A. H. Jones) to have a needed siesta, whilst I went through the small town to see the far famed grotto with its church above it. It happened to be a quiet day with but few pilgrims, and of this I was glad, as I made my way through the winding street, the Boulevard de la Grotte. On the one side the Boulevard was lined with shops of all descriptions, for the great part, however, with but one object in view, *viz.*, the sale of mementos of "my Lady of Lourdes" and of all the cures wrought by her marvellous efficacy. The shops end at a small bridge beneath which flows the river, the Gave du Pau, beyond

which the ground is all beautifully laid out as a spacious garden, mostly consisting of lawns very carefully kept, up to the ascent to the church, beneath which is the grotto. It was with mingled feelings and conflicting thoughts that one gazed on the scene, a scene that now almost brought tears to one's eyes and anon produced a sense akin to indignation. Hundreds of people were about, none apparently seriously ill, and a few cripples still using their crutches. As they sat or stood in front of the grotto, all were reverently intent on the shrine, some counted their beads, others were saying "sotto voce" their "aves," others again were lost in contemplation: but as one watched and attempted to read the faces around the wonder grew, how? how could such a thing exist, and not only exist, but be a force in this twentieth century? and "still the wonder grew." Lost in reverie, the hours had sped, and I barely allowed myself sufficient time to get back to the station, where I found my friend beginning to get anxious lest I should miss the train. A pleasant ride brought us to Luz, and another change on to the electric tram brought us through lonely and romantic scenery to St. Sauveur, from whence the journey to Gavarnie was completed by carriage. We had scarcely got into the hotel, when a well known voice saluted us, and we found ourselves face to face with Mr. Rowland-Brown, who had already spent a fortnight in the locality. So we arrived at the "haven where we would be."

Our first day was spent on the way to the "Port de Gavarnie," *i.e.*, the Pass over into Spain, in the hope of taking *Erebia lefebvrei*, and in this we were not disappointed, two or three falling to each of us. *E. stygne* also was not uncommon and in beautiful condition, the most plentiful of the genus was, however, *E. tyndarus*, which occurred both in its type form and its var. *dromus*. Among the blues *Plebeius argus* (*aegon*, Auct.), was common and shared honours as to which was the commoner with *Agriades coridon*, this latter being generally of the Pyrenean form with very pale creamy underside, sometimes almost white. *Heodes virgaureae* was taken, and I took a single specimen of the much coveted *Latiorina pyrenaica*. *Urbicola comma* was the only Hesperid seen this day, the Argynnids were few and far between, the one species taken being *Argynnis aglaia*, whilst *Pararge maera* var. *adrasta* was also the only one of its genus that put in an appearance.

Our next day was spent on the slopes below the Piméné in search of *Erebia gorgone*. The path up after quitting the river bed is by a series of steep zig-zags and very few insects cheered our eyes as we ascended bend after bend. *Erebia stygne* appeared now and then, and a single *Melitaea dictynna* fell to my net, and when we got on to the grassy slopes, already so closely cropped by the cattle that they were poor hunting grounds for us, I took one *Coenonympha pamphilus*, which in the end turned out to be the only one I took, though this does not mean that we did not see it again. At last we got on to the special slopes of which Mr. Rowland-Brown had told us, and by dint of working hard we captured a nice little lot of *E. gorgone*. We were by no means satisfied, however, for as this species occurs only in the Pyrenees we were naturally anxious to get a good series, so we decided to come again after the arrival of my friend Mr. C. J. Wainwright. As we descended, a nice *Polyommatus escheri* was enticed into my net, and also a single *Aricia medon* (*astrarche*). I think I omitted to say that *E. tyndarus* var. *dromus* occurred everywhere, and also that

we took a nice little series of *Erebia epiphron* with its var. *cassiope*, the latter species flying high up with *E. gorgone*.

Our next trip, after having had another day in search of *E. lefebvrei*, was up the Val d'Ossoue, where *E. manto* var. *cæcilia* was to be found. In this valley insects were more plentiful than anywhere else. As we wended our way among the rocks in the early part of the path, we were much struck by several very small specimens of what we thought must be *Satyrus alcyone*, but here it was far away from all trees, disporting and sunning itself on the roads. Several evaded our endeavours at first, but finally we were both successful, and found it was *S. alcyone*, as we had at first surmised, but with the underside strongly yellowish. Monsieur C. Oberthür,who was also staying at Gavarnie, and whom we had the great pleasure of meeting, told us that this was the Pyrenean form, but the difference in habit was also remarkable. *Polyommatus escheri* in both sexes greeted us, and when we came to the bridge, over which we had to go, we again had the pleasure of taking *Latiorina pyrenaica*, with *A. coridon*, *P. argus*, and *Polyommatus icarus*. After crossing the bridge we came into quite another lie of country, we first passed through some meadow land covered with flowers, among which the commoner of the "blues" disported themselves. I hoped to have taken some *Zygænidæ*, but they were conspicuous by their entire absence. Then we had to ascend through a wide belt of trees of all kinds, and in some of the small clearings I took a *Colias edusa* and a single *Pontia daplidice*. *Erebia euryale* soon appeared commonly, but quite passé, so much so that it was difficult to find a decent specimen. All the way along *Parnassius apollo* had been in evidence, a fine large form with very black large spots. At last we came to the *E. manto* ground, along which we wandered to and fro with a fair amount of success, and were able to secure a nice, if short, series of var. *cæcilia*. This being done we considered we had earned our lunch, only the difficulty was to find a spot close to the river and at the same time to be sheltered from the brilliant sun. Our repast being over, I went further up the valley, whilst Mr. Jones continued his search on the ground near by, for var. *cæcilia*, of which a few more specimens fell to each of us. I came shortly to a flowery bank, where dozens of *Argynnis pales* were tasting the sweets of many a flower. I soon went down and made their acquaintance and took what I thought was a good series, but when set many turned out to have seen their best days. A little further on the bed of the stream widened out greatly and was partly overgrown with thistles and other plants. Here I took a lovely large female specimen of *Argynnis adippe* var. *cleodoxa*, with the basal and median areas suffused with a beautiful purplish smoky black. *Colias edusa* was not uncommon with *Argynnis aglaia*, only when the two came in conflict on a thistle head the former always had to give way, for one flower could contain no more than one *A. aglaia*, which was always quite oblivious of everything but its own needs.

(*To be continued.*)

NOTES ON COLLECTING, Etc.

A Pathological Specimen of Callophrys rubi.—I took a curious specimen of this species at Brasted Chart on April 27th last. It was,

of course, quite fresh at this date, but almost the whole lower half of the right forewing is of a pale shade of "dead gold."—GEORGE WHEELER, 37, Gloucester Place, W. *May 30th.*

LYCAENIDI, ETC., ON THE NORTH DOWNS.—I have spent part of three days this month on the downs at Gomshall, *viz.*, the 14th, 21st and 28th. On the first occasion the sun went in just as I arrived, and I saw only one *Polyommatus icarus* ♂, and one *Hamearis lucina* ♀. On the second day I had about half an hour's sunshine and found *P. icarus* very abundant, the majority of the ♀s being much suffused with blue; the proportion of those which were blue to the edge of the wings, the orange lunules being placed directly on the blue, was unusually large, the shades of blue were also very varied. One *Agriades thetis*, ♂, was taken on this occasion (the 14th). *Nisoniades tages*, *Coenonympha pamphilus*, and the two species of *Euclidia* were abundant. On the 27th blue ♀s of *P. icarus* were as common as before, and on that day and the following, when I walked along the downs from Gomshall to Dorking, *A. thetis* was in great abundance, many of the ♂s, especially in Denbies, were of the form *puncta*, Tutt, and most of the ♀s were suffused, many of them broadly, with blue. Both at Gomshall and Dorking I took examples with blue disc and the rest of the wings as black as in ab. *urania*, Gerh., but differing from this form by the presence of small orange lunules on the hindwing, which are absent in Gerhard's figure. I also took both ♂ and ♀ *A. thetis* without basal spots on the forewing, and a ♀ of the ab. *addenda*, Tutt. One of the blue ♀s of *P. icarus* was pronouncedly of the *melanotoxa* form, and of two ♂s which I casually took, one was completely and the other almost of the *icarinus* form. On each of the other days I had walked over the downs from Horsley, and on the 14th I took on the north side of the downs *Brenthis euphrosyne*, *Hamearis lucina*, *Euchloë cardamines*, *Pieris napi*, *P. rapae*, *Rumicia phlaeas* and *Celastrina argiolus*. Both on the 21st and the 28th I took a single specimen of *Aricia medon* at Gomshall, and on each occasion specimens of *Callophrys rubi* were noted, as also of *N. tages*, whilst *Hesperia malvae* appeared for the first time on the 28th, though I had taken it at Brasted as early as April 27th.—ID.

SCIENTIFIC NOTES AND OBSERVATIONS.

STRAY NOTES FROM CEYLON.—VARIATION OF DELIAS EUCHARIS.—This is believed to be very constant in colouring; on the upperside it is plain white in the male and blackish-white in the female, the under surface of the hindwing is very handsome, being brilliant chrome-yellow on the disc and with crimson marginal spots. It is universally esteemed as a typical unpalatable insect, and certainly in many of its habits has the characteristics of one. It is very abundant, is seldom, so far as my observations go, attacked by birds, and it frequently rests for long periods on the upper surface of a broad green leaf, such as *Calladium*, where its striking under surface makes it very conspicuous. The larva feeds on the tulip tree (*suriya*) which has yellow flowers, which become tipped with red when fading, and the butterfly is very difficult to detect when settled on the leaves of this tree. When studying Mimicry I collected a considerable number to note if there was any variation in a protected butterfly, the results somewhat surprised

me. On January 28th, 1911, it was particularly numerous round three or four suriya trees, they were freshly emerged and quite possibly belonged to one or two broods. I noticed that the amount of yellow was not always constant, it fills a variable number of interspaces, the upper ones being those most liable to vary; the spaces are easily counted as the veins are well marked with black. I found the following variation in the thirty-seven males captured:—

Forewing, apex underside tinged with yellow (usually white), 9; cell entirely or almost entirely yellow, 26; cell upper part white, 10; 6th interspace tinged yellow (usually white), 5; 7th interspace tinged white (usually yellow), 13; with eight red post-discal spots, 27; with seven red post-discal spots (upper spot white or pink), 9. Females, 5: No variation; apex yellow, all interspaces yellow, and eight red post-discal spots.

There is therefore more variation than is generally thought, and it would seem that if any change occurred in its environment it would be ready to suit itself to its changed conditions. Assuming that as an unpalatable butterfly it is endeavouring to form an unpalatable group with other somewhat similarly coloured butterflies, it is fairly obvious that such slight variations (assuming that they are the ones needed) would scarcely be taken account of by an enemy making an attack. As a matter of fact, the only specimen I have seen captured was seized on the wing by a lizard, which made quite a respectable jump at it.

There is little doubt that if this insect occurred in England the variations noted above would receive distinctive names. There is a fine field open to collectors and "aberrationists" among the butterflies of the tropics, and it is a matter of surprise to me that they have hitherto in a large measure escaped, when for a few shillings a large number could be purchased and the "aberrationist" make himself happy during the winter months in naming their infinite variety. If he did so it would perhaps relieve the pressure on our own small numbers of persecuted butterflies. I have always experienced a difficulty in understanding the standard by which these small aberrations are estimated. To ordinary eyesight one specimen may appear precisely like its neighbour, yet a pocket lens will show a difference, and others which seem alike under these conditions are obviously different under a microscope and so on; where is the line to be drawn? Take the case of *Teracolus limbatus*—a white butterfly with an orange tip to the forewing—I find the following aberrations in the cell of hindwing underside only:—Ab. 1. Cell pure white, unspotted. Ab. 2. Small brown spot at apex of cell. Ab. 3. This spot is green. Ab. 4. Frequently yellow. Ab. 5. Sometimes orange. Ab. 6. By no means seldom this yellow spot is surrounded with brown. Ab. 7. Often again with green. Ab 8. Under a hand lens the scales are mixed brown and green. Ab. 9. Under $\frac{1}{2}$" objective the scales are seen to be orange at the apex and yellow at the base; and so on *ad infinitum*. And may I ask, can absurdity go further? *T. limbatus* may congratulate itself on not being an English butterfly!

Resting Habit of Cupha placida at Night.—In the depth of the jungle, on the underside of a dark green leaf, about fifteen feet from the ground, fairly conspicuous.

Resting Habit of Precis lemonias at Night.—On upperside of leaf close to a clay bank; most conspicuous with this background.

BUTTERFLIES OBSERVED TO BE MORE OR LESS MUTILATED ON THE ROAD BETWEEN HALDUMULLE, 4,000 FT., AND PELMADULLE, 800 FT., FROM 27. XII. 10 TO 30. XII. 10.—*Lethe nilgiriensis*, badly; *Precis lemonias*, badly; *P. orithyia; P. iphita; Parthenos cyaneus; Terias silhetana; Hypolimnas bolina*, ♂, found a forewing of this species on the ground, and a Paradise fly-catcher was not far off. Though I kept a sharp lookout, I did not see a single capture of a butterfly by a bird, though Drongos were numerous; there were a few Paradise fly-catchers and about half-a-dozen Philippine bee-eaters. These latter were very partial to the telegraph wires, where they passed across the paddy fields, and though butterflies, *Catopsilia* especially, were congregated in crowds at frequent intervals, the birds took no notice of them, but hawked flies over the marshes in preference.—N. MANDERS (Lieut.-Col., R.A.M.C., F.E.S.), The Curragh, Co. Kildare.

REVIEWS AND NOTICES OF BOOKS.

WYTSMAN: GENERA INSECTORUM.—FASCICULE DERMAPTERA. By Malcolm Burr, D.Sc.—This epoch-making work continues to make steady progress, the various sections being produced with the aid of the best present day authorities on each, and in addition artists of the first rank in depicting natural history character are employed to illustrate the text.

The latest fascicule deals with the Dermaptera, and the author is Dr. Malcolm Burr. It is well known that Dr. Burr takes the keenest interest in this particular group and has been for many years engaged upon a monographic revision of the Earwigs of the world, and at frequent intervals numerous small instalments have appeared from his pen in various English and Continental publications.

Earwigs have never been a popular group with Entomologists, possibly owing to the poverty of material generally obtainable, so that Dr. Burr has had practically an open field, and has consequently made the study of this group particularly his own.

Last year, he gave us a very detailed account of the Earwigs of India in the *Fauna of British India* series, in which we find a suggestion of the new scheme of classification, which is elaborated in this fascicule. The progress in our knowledge of the group especially during the last ten years is truly remarkable. In 1869, Dohrn knew 19 genera and 156 species; in 1900, 31 years later, de Bormans described 323 species distributed through 32 genera, while in 1911, Burr gives us no less than 706 species, distributed through 132 genera, the majority of which are erected by himself.

Few other authors have ventured in the field. Borelli, a most careful worker, with a fine knowledge of the group, has chiefly confined himself to faunistic papers and the description of numerous species. Semenoff, a most talented Russian entomologist, whose works are too little appreciated in this country, has scarcely ventured beyond the limits of the fauna of the Russian Empire. Two German authors, however, have made notable contributions. In 1901-2 Verhoeff issued a few papers which startled his limited public by the originality of his methods and his views. The really sound and valuable part of his work was eclipsed by his neglect of the elementary principles of systematic entomology, and it was left to Zacher in 1910-11 to amplify it and carry it towards a logical con-

clusion. This last author's work has all the virtues, all the views, of the German school of philosophy, originality, patience, and profound research, but yet a too big superstructure is reared upon insufficient foundations. The gifted young author, however, is continuing his observations, and further work from his laborious pen is looked for with interest. Since he practically confines himself to the morphology of the genital armature, internal and external, while Burr's system is built up exclusively on general external morphology, it is most satisfactory to learn that the results of these two authors do not clash in any essential point, but differ only in a few trifling details. We are therefore justified in hoping that the collaboration of these two industrious workers will give us a really natural classification of this difficult group.

It is the Germans who first classified the earwigs into major groups, but it is in the present work that we for the first time find the whole section treated comprehensively. Burr ranks the earwigs not as a family of the Orthoptera, but as an independent Order, a natural result of the increase of modern knowledge. He divides it into three Sub-orders. The first, the *Arixenina*, includes the curious parasitic larval forms recently described by Dr. Jordan in *Novitates Zoologicæ*. The second, the *Hemimerina*, includes only the much-discussed *Hemimerus*, undoubtedly a relative of the earwigs, with a strong superficial resemblance to a cockroach, and originally placed by Walker, with his usual fatuity, among the mole-crickets. The third suborder, *Forficulina*, contains the true earwigs. Burr follows Zacher in dividing them into three Superfamilies, in descending order of phylogenetic relationship, which is expressed by the gradual reduction of the telson. The smaller details and divisions are beyond the scope of this review, but in the main, Burr follows Zacher in an arrangement of the *Protodermaptera*. The curious, flattened subcorticinous *Apachyidae* have a superfamily to themselves, but they are regarded as a highly specialised offshoot of the *Labiduridae*. The *Eudermaptera*, containing the three families of higher earwigs, have been treated solely on external morphological grounds, which only the specialist is competent to criticise, but the point which appears most striking, is the multiplication of small genera, many being monomorphic, although *Labia*, much reduced as it is, still contains forty-two species, and *Forficula* forty-three.

An exceedingly valuable portion of the paper is the illustration. The fine standard set in the half-volume on Dermaptera in the *Fauna of British India* series, with nine half-tone and one coloured plate, is even surpassed; we have here eight coloured and one plain quarto plates; with numerous outline drawings mingled with the coloured figures. If Dr. Burr had never written a line upon the earwigs, Entomology would owe him a great debt for the production of these admirable plates.

The really beautiful and accurate drawings are by Mr. Edwin Wilson. Mr. Wilson has long since made his reputation as an unrivalled scientific draughtsman; in these plates he has indeed surpassed himself; his knowledge of the groups must by now be by no means contemptible; the drawings have been admirably reproduced, with no loss of delicacy nor accuracy, and author, publisher and engraver, as well as artist, are to be heartily congratulated upon the beautiful and valuable result.

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Photo. F. N. Clark.

Hydroecia paludis, malformation × 12½.

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Photo. F. N. Pierce.

HYDRŒCIA PALUDIS, MALFORMATION.
(Compare Plate IV. for references.)

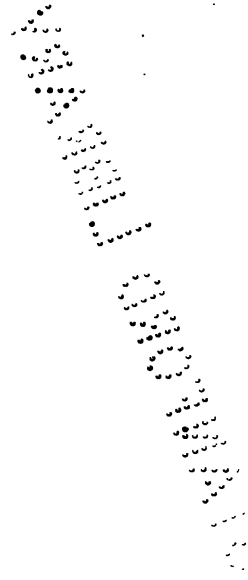




Photo. G. T. Bethune-Baker.

An Amusing Incident.

H. Rowland-Brown. A. H. Jones.
C. J. Wainwright. G. T. Bethune-Baker.



Photo. G. T. Bethune-Baker.

Where Eremia lefebvrei flies.

Handbook Business



Photo. G. T. Bethune-Baker.

Looking towards the Cirque from the Port de Gavarnie.



Photo. G. T. Bethune-Baker.

Spain from the "Col" just beyond the Port de Gavarnie, where we took Lampides boeticus and Hepialus pyrenaicus var. alticola.

A Fortnight at Gavarnie, Hautes-Pyrénées. (*With two plates.*)

By G. T. BETHUNE-BAKER, F.L.S., F.Z.S., F.E.S.

(*Concluded from page 152.*)

After this Mr. Wainwright joined us, and we had a glorious walk to the Port d'Espagne, taking the bridle-path on the north side of the mountains. Some parts of the way were very steep, but very delightful, and as we dispersed more or less a flock of sheep sheltering from the broiling sun beneath a vast rock, we realised something of its steepness for a short distance, where we had to cling to any herbage or tufts of grass that were strong enough to hold us. Ere long, however, we found ourselves on a lovely soft green pasture, and smooth as velvet, along which we wandered until my attention was attracted by a pair of *Urbicola comma*, that were evidently courting. They flew rapidly together for a few yards and then settled, the female in front of the male. After a moment or two of antennal agitation, the male slowly walked up beside the female with much waving of the antennæ, until he was fully alongside of her, when they remained quite motionless, except for their antennæ, for quite a couple of minutes, when another sudden short flight occurred, the female taking the lead and being closely followed by the male. This was followed, on alighting, by another performance exactly like that just described; over and over again this occurred for quite ten minutes, when I dropped on to my knees to see if there was any flexion of the male's abdomen. In this position I got quite close, but apparently there was no attempt at copulation. Being so near, however, I saw what I had not seen before, *viz.*, that the male was a specimen of that pretty aberration with all the white spots confluent on the underside, named by Oberthür ab. *faunula*. This discovery, I fear, put an end to my observations on mating, as I thereupon enclosed them both in my net. Somewhat beyond this a small colony of jackdaws attracted our attention, they were very wary, unaccustomed to the presence of the human biped. One or two chats that I did not know, and the wheatear, also put in an appearance, and enlivened a scene that, though lovely indeed, was nevertheless almost devoid of life. As we ascended, *Erebia gorgone* occurred not uncommonly, and *E. epiphron*, and I think it was here also that I took the only specimen of *E. gorge* that we saw at Gavarnie. One *Hesperia sao* likewise fell a captive to me, with the upperside very black and the underside beautifully rosy. At last we emerged on to the high bridle path near to the top of the pass, a path largely dug out of the shaly side of the mountain, which appeared to be given up to cattle, who were very unwilling to let us pass, until in the end we found ourselves driving scores of heads before us, the foremost of which were by no means easily forced along by the pressure of those behind. After a time, however, we had the opportunity of a sudden rush along the side of the mountain, and finally succeeded in turning them and in having the rest of the way to ourselves. I had previously noticed on the shaly screes above and below the path that the cattle had disturbed some black butterflies, which I had no doubt were *E. lefebvrei*, and so it turned out to be, for I took a couple a little later on. Soon after this I saw a dark coloured blue that I could not quite make out, and ere long another came, but this time the opportunity was not lost, and I

found I had secured my first *Lampides boeticus* from this locality. A few minutes more brought us to the Port de Gavarnie or the Port d'Espagne as it is sometimes called. In front of us lay Spain with its many and deeply interesting associations, its checkered history, its beautiful country—poor Spain from nearly every point of view—behind us lay "la belle France" with her marvellous history and lovely country, filled with life, and so internally and financially strong that when she wanted twelve millions the other day for one of her western railways, over thirty times the amount was subscribed for in a single day, the larger portion of this coming from her peasant proprietors. But the time had come to cease from reveries and to find a place for lunch, the sun was hot, the wind cool. Water? Where was water? The only visible sign was a trickle across the path 100 yards away. We therefore "followed the gleam" and made our way thither. Just about fifty yards up the hill side we found its source, a little underground stream bubbling up into a wee well about eighteen inches in diameter surrounded by soft verdure as green and fresh as could be desired. Here we had our repast and promised ourselves to return to Spain at some other time, having pleasant memories of our lunch there on this day. Just as we had finished, a white butterfly caused me a run, only to find that I had secured a specimen of our common *Pieris rapae*. Again another "white," this time however it was *Pontia daplidice*. Then a large *Crambus* was hurled along by the strong wind, which turned out to be the Pyrenean *Crambus digitellus*, a species at present I believe only recorded from southern France, I took a male and two females. *C. radiellus* also occurred here. Flying about in the sunshine were several *Plusia* which I chased, the first proved to be the ubiquitous *P. gamma*, but the second was what I had hoped for, *viz.*, *P. ni*. One or two *Lampides boeticus* were occupying my attention on the "col" of the pass when my friend (Mr. Wainwright) shouted "Here! Quick!" and I saw him make two rapid strokes with his net. As I came up he said, "Here you are, I don't know what they are," and as I boxed them, judge my delight when I found he had taken two specimens of *Hepialus pyrenaicus* var. *alticolor*, Obth. I was not, however, fortunate enough to find the apterous female. On our return along the usual road we stayed on the *Erebia lefebvrei* ground and I succeeded in taking another couple of specimens, and also just before reaching those screes the only Zygænid seen at Gavarnie, *viz.*, *Adscita statices* var. *crassicornis*, at least I conclude it must be this, though I see no difference between it and var. *heydenreichii*. To go back to *lefebvrei* for a moment. This species will fly quite late in the afternoon in the sunshine, but directly a cloud hides the sun *E. lefebvrei* hide themselves. The gradient of the screes is so steep and the stones so loose that it is quite impossible to chase the insects, the only plan is to have a fishing-rod net and to stand and seize the opportunity when it occurs.

Another walk up the slopes below the Piméné produced a very nice series of *E. gorgone*, with a number of fine females, more *E. epiphron* and one or two var. *cassiope*. *Setina irrorella* was not uncommon, and I took a single specimen each of *Lithosia lurideola* and of *L. complana*. *Crambus radiellus* and *C. conchellus* were the only two species of that genus that I saw. A couple of days later Mr. Wainwright and I decided on a short expedition to Cauterets, via the Vignemal Pass and the Lac de Gaube, as I much wanted to try the

latter locality. Our way was through the Val d'Ossoue; we had seen on a guide post that it took eight hours from Gavarnie to Cauterets, and without reference to our guide books we determined to do as much collecting *en route* as possible, and to stay one night if not two at the Chalet Hotel, by the Lac de Gaube. We went happily along, one of my early catches being a magnificent example of an entirely black *Coscina cribrum* var. *rippertii*, only with black hind- as well as fore-wings. I believe this has been named var. *melanoptera*, but I cannot turn up the reference. Another fine capture was a lovely female *E. stygne*, smoky-brown, with the bands wherein are the ocellations of a very pale straw colour suffused with smoky-grey, the underside being sooty-grey with bands of the same colour, as above in the forewings. Several specimens of *Carcharodus lavatheræ* fell to my lot, and more very fine *U. comma*. I took also this day two additional Lycænids, *viz.*, one specimen of *Loweia dorilis*, and three of *Chrysophanus hippothoë*. *Thymelicus actæon* occurred sparingly and the usual blues, and I captured a couple of *Heliothis peltigera*. As the time wore away it became evident that not only should we not arrive at the Lac de Gaube that night, but that it would be all we should do to reach the Refuge d'Ossoue before dark, so we had to push on, passing meadows that I longed to spend an hour in, until at last the Refuge was sighted between half-past eight and nine, and then we learnt from the guide that it was a good five hours' walk to that spot and another six to Cauterets. It was along this route that we came across one of the most lovely scenes I have ever witnessed. As we rounded one of the mountain sides, suddenly we had laid open just in front of us on our right, the whole side of two mountains closely carpeted with most magnificent examples of the large purple iris, a perfect blaze of intensest colour in the brilliant sunlight. There must have been acres and acres one mass of colour—we could but stand and gaze, lost in wonder and admiration. The whole setting was perfect, words fail to express one's thoughts, the two expressions that rose to our lips were, "marvellous," "glorious"—certainly that sight will ever live in my memory. We were very thankful for the hospitality of the Refuge of the French Alpine Club, and were up at four o'clock in the morning in time to see another view of great beauty—shall I call it the "Passing of the Night?" The sky was just changing from the darkness of night to that wonderful steely-blue that is only to be seen high up in the mountains. We were then 8,900 feet high, the stars were still visible, the silence was to be felt, and a sort of adoration came over one as gradually the dark blue softened, and yet more softened into that indescribable colour that occurs just before dawn. Then the sun lit up first one peak then another, gently creeping throughout the whole circle as the orange tinge warmed up, first this one and then its neighbour. Gradually this hue changed into palest yellow, until at last the sun showed himself in his strength, and life was renewed for another day. Having partaken of our *petit déjeüner* we passed on our way up to the Col de Vignemale, and then down over the snow, guided by the footsteps of someone who had recently come up from that side—probably two French climbers who had passed the night at the Refuge as we had done. The snow was in greater abundance than usual, and it was at least an hour to two hours before we left it quite behind us. As we passed downwards an

Erebia foiled a hasty and ill-directed stroke, but it put me on the *qui vive*, and so later on several *E. gorge* were made captives, fine large specimens too, decidedly larger than any Swiss ones. A little further along a quite fresh *E. gorgone* allowed me to box him; and whilst doing this a Zygænid flew past at a great rate, and I followed. Having tracked him down I found I had a species new to me, with a very hairy body and a central red band, it was of course *Anthrocera anthyllidis*, but I only succeeded in taking one more of the species. Soon another *Erebia* tempted me to a run; this time it was a nice female *E. epiphron* with very pale tawny bands; previous to this, soon after we had left the snow, a few specimens of the genus *Hercyna* were noted sunning themselves on the stones in the path. Two that I caught turned out to be *H. phryxialis*. Lower down, nearer to the Lac, two specimens of *Erebia lappona* were netted, one of them being quite fresh. This was on August 6th. We were now nearing our goal, but were yet in the undulating pastures of the valley before reaching the far end of the lake. Here *E. gorgone* was not uncommon, several of the specimens being without the white pupil to the eye spot on the upperside. *E. gorge* also occurred sparingly. *Endrosa irrorella* likewise occurred here, and among them I took one quite good var. *freyeri*, and also one transition to it. We reached the hotel, if we may dignify it by the name, in time for lunch, which we enjoyed in the covered place at the head of the mountain lake. We stayed here the night, and I hunted all round with very little result, only taking one *Brenthis pales* and one *B. euphrosyne*. The next morning we started early for Cauterets, where we had to wait till three o'clock for the train. We, however, used the time to the best advantage, in lunching and in getting photographic mementoes of the neighbourhood. The only insects I took were one *Satyrus alcyone*, a fine *Pararge aegeria*, and one *Anthrocera transalpina*. The waterfalls were many all along the entire path, with large volumes of water, and set in the midst of lovely surroundings. The fall half way from the Lac de Gaube to Cauterets (Cascade de Cérisey) was one of the finest I have seen outside Norway. When we arrived back at the hotel we found the proprietor had been quite disturbed at our two nights' absence, and was only persuaded not to send a relief party after us by Mr. Jones, who said that we had spoken to him of the possibility of a two nights' absence.

The next day was Sunday, and we were glad to be present in the morning at the dedication of a new little English church for Gavarnie. It was especially interesting as the foundations were laid and all was built during the fortnight we stayed at the village—of course the upper portion was all of wood. The afternoon of that Sunday will be memorable in our annals, for at *déjeuner* a hail storm of unusual violence began. In the middle of the meal, the heavens having become black with clouds, the storm suddenly broke with a torrent of hail stones bigger than marbles; the noise was so great that every one rose from the tables to look, in five minutes the road began to flood, the gradient in front of the hotel being great, the water and stones ran down the hill to the stables in great volumes. The top lights of the hotel in the roof were perfectly riddled by the force of the hail, every animal fled for shelter, but it was not until later on that we realised the full potency of what proved to be a record-breaking storm. It lasted at Gavarnie about two hours. We had arranged to take a

Sabbath-day's journey into the Cirque and at about 4.30 p.m. it cleared sufficiently for us to do so. As we approached nearer our goal we began to have some idea of what had happened. Across the path were rivulets that ordinarily would not have necessitated even lengthening our usual tread to pass over, but that had become streams to be jumped, and once or twice to be taken at more than one jump, whilst one stream had become so violent and deep, that it took us a quarter of an hour to find a ford, and even then we suffered more or less in taking it. Hail-stones as large as good-sized hen's eggs were lying about by the hundred. The grassy declivities and unevenness of the ground had become most lovely mosaics, the hollows of the ground having become filled with water, partly rain, partly melted hail, the surface of the water being completely packed with hail-stones that had melted vertically but not circumferencially. The centre of the stones was opaque and snowy, the circumference being narrowly of the same texture and colour, whilst the whole of the intervening area was broadly perfectly clear ice. The effect produced was that of most lovely and most wonderful mosaics, in every hollow, some of a considerable area. It was indeed a beautiful sight, but the force of the storm was visible all round in shorn off boughs and broken branches that lay about, whilst the nearer we approached the Cirque, the more severe must the storm have been, until in the magic circle itself, I picked up a hail-stone over 3½ inches long by 3 inches broad and 1½ inches thick, and when it is remembered that I did not find it until after two hours from the time it had fallen and that it had melted greatly, again in the vertical line, we realised that originally that stone must have been larger than a cricket ball, or at least fully as large. Had such a stone struck a human being on the head it must have been death. Mr. Jones sent a model of this to the Royal Meterological Society whose Secretary informed him that it was a "record." On the Spanish side the storm was much worse, the stones being described by Mr. Wheeler, of Eastbourne, as usually the size of golf balls, whilst a very large percentage were as large as cricket balls, causing the death of many scores of sheep, and of between twenty and thirty cattle.

We had arranged to go to Argelès-Gazost the next day *en route* for home and we were not sorry to do so. There our pleasant party broke up, Mr. Jones went back to Mende to take *Erebia neoridas* (an account of which has already appeared *ante* p. 121), after staying on a couple of days I returned direct home, whilst Mr. Wainwright stayed a day or two longer to "dipterise." It may be well to briefly enumerate my captures in the two days. The first day I made my way into the main valley and went up a side valley and returned direct over the hills to Argelès, *en route*, really it was on the main road, I took a fine *P. podalirius*, something between the type and var. *jiesthameli*, and in the hills a perfectly fresh *P. machaon* fell to my net. *Colias edusa* was not uncommon, and *Dryas paphia* also, but this latter species had seen its best days. *Leptosia sinapis* was fairly plentiful, as was also both *P. megaera* and *P. aegeria*. I also took one *P. maera* and a single ab. *adrasta* the worse for wear. *P. jurtina* was quite fresh, and I netted several nice females but not of the *hispulla* form, at least only one is inclined in that direction. Two nice specimens of *Salebria* (*Laodamia*) *semirubella* fell captives to me among some long grass, and from the

bordering hedge near by I dislodged two fine *Callimorpha hera*. Among the blues, *A. coridon* was common, and *P. icarus* was likewise fairly common. Of *A. medon* (*astrarche*) I only took two, whilst *Lampides boeticus* frequented some flowering vetches that climbed over a hedge, they were, however, rare and had seen better days. Two rather poor *Loweia dorilis* were also captured. Hesperiids were few and far between, a single *Adopaea flava* (*thaumus*), a pair of worn *Augiades sylvanus*, and *Hesperia carthami*, and one *Nisoniades tages* being all that put in an appearance. The next morning we repaired to an old tower in the valley, and along the road under an avenue of trees, *Satyrus alcyone* was not uncommon, but was uncommonly difficult to catch, of *Pyrameis cardui* a single specimen was taken, and a beautiful specimen of *Euvanessa antiopa*. Here also I succeeded in taking a quite fresh *Rhodocera cleopatra*. I have been unable to find a record of this species from the Pyrenees, and I do not know whether this is a new occurrence or not from this district. *Melanargia galathea* also occurred, but was going over. The only Zygænid I saw or took is a form of *Anthrocera filipendulae*, which is evidently var. *ochsenheimeri*. *Aphantopus hyperantus* also occurred, but its condition was far from good. Thus ended a very pleasant holiday, and one that made me desire to try the Pyrenees again, nearer perhaps to the Mediterranean.

The Season of 1911 in the Abertillery District of Monmouthshire.

By W. RAIT SMITH.

(*Concluded from page 138.*)

On June 6th I had a day's collecting at Teignmouth and Dawlish. I was disappointed at the results, as I had hoped to do fairly well. *Pieris brassicae* and *P. rapae* were common enough, and one or two examples of *P. napi* were seen. A few worn ♀s of *Euchloë cardamines* were seen, in company with equally dilapidated examples of *Brenthis euphrosyne* and *Pararge megaera* on the cliffs near "The Ness." The same place gave a few large bright *Brenthis selene* in perfect condition. The only other butterflies seen were *Epinephele jurtina* (*ianira*), *Coenonympha pamphilus*, *Rumicia phlaeas*, and *Polyommatus icarus*, which were all common. My principal object in visiting this locality was to try to obtain some larvæ of *Bithys quercus*, but in spite of much beating of oak, not a single larvæ of this species rewarded my efforts. A worn ♀ *Acidalia imitaria*, beaten out of rough grass near "The Ness," obligingly laid about fifty ova in a chip box during this and the following day. The larvæ fed up rapidly on dock, and produced imagines in August. Unfortunately most of these insects emerged whilst I was away from home, and had battered themselves about and died before I returned. *Anticlea rubidata* was common amongst rough herbage and in thick hedges. *Coremia ferrugata* and *Xanthorhoë sociata* were fairly common, and single examples of *Iodis lactearia* and *Mesoleuca ocellata* were beaten out of hedges. A beautifully fresh *Botys asinalis* was beaten out of ivy growing over a low stone wall; *Tortrix forsterana* and several other species of *Tortrix* not yet identified were beaten out of rough herbage. *Scoparia dubitalis* was abundant and *Crambus pratellus*,

C. pascuellus, *C. selasellus* and *C. perlellus* were common in grassy places. A short series of *Platytes cerusellus*, in fine condition, were beaten out of rough herbage growing on the cliffs near "The Ness."

On June 17th I paid a second visit to the Kewstoke Woods at Weston-super-Mare. The three "whites" were common enough. A few *Brenthis selene* were seen. Worn examples of *Pararge ægeria* were seen in company with beautifully fresh examples of the second brood. This butterfly is very common in these woods. *Epinephele jurtina* (*ianira*), *Cœnonympha pamphilus*, *Rumicia phlaeas* and *Polyommatus icarus* were all fairly common. Beating oak for the larvæ of *Bithys quercus* was again a failure. Two or three examples of *Augiades sylvanus* represented the "skippers." A fine ♀ *Dasychira pudibunda* was taken at rest on red dead-nettle. *Opisthograptis luteolata* and *Metrocampa margaritaria* were beaten out of bushes in fair numbers. By far the commonest insect seen was *Abraxas sylvata*, which was beaten out of bushes in large numbers, scores were seen ranging from very light to fairly heavily marked examples, but nothing which could be called a variety. This species does not occur in the Abertillery district at all. The common *A. grossulariata* appeared quite scarce in comparison with the much more abundant *A. sylvata*. The sight of a fine fresh *Asthena blomeri*, at rest on the trunk of a wych elm, encouraged me to further efforts in this direction. The rest of the day was principally spent in searching for this beautiful little geometer. I was fortunate enough to take a dozen examples altogether, mostly in good condition. From 11 a.m. till 3 p.m., *A. blomeri* was found to be resting quietly on the tree trunks, in every case a wych-elm, after 3 p.m. they were taken at rest on ground ivy and other low growing plants, or were beaten out of bushes, they were then decidedly skittish and had to be captured with the net. *Acidalia aversata* and *A. immutata*, *Cabera pusaria* and *C. exanthemata* were beaten out of bushes in fair numbers, together with a few *Hydriomena furcata* (*elutata*) and *Mesoleuca ocellata* with swarms of *Xanthorhoë montanata*, and *Camptogramma bilineata*. *Tortrix viridana* swarmed round every oak, and *Tortrix ministrana* and a few other species were beaten out of bushes. A single *Cryptoblabes bistriga* was beaten out of oak. The weather was glorious on this day and I have no doubt a great many more species would have been taken had I not devoted the greater part of the day to searching for *Asthena blomeri*.

In July most of our common insects were seen or taken in fair numbers. *Argynnis adippe* was commoner than usual this year. *Dryas paphia* and *A. aglaia* were not noticed at all, both are rare insects in these valleys. *Aglais urticae* was common everywhere and *Vanessa io* was plentiful enough in most places. *Satyrus semele*, for some unaccountable reason, has sadly decreased in numbers, a few were seen at Tri-nant, where they were abundant five years ago. *Coenonympha pamphilus* and *Rumicia phlaeas* livened up every grassy slope. *Adopaea flava* (*thaumas*) were common at Crumlin and a few other places. This species is inclined to be somewhat local with us. A nice series of *Crocallis elinguaria* were bred from larvæ collected from heather last month. A fine and varied series of *Hydriomena furcata* (*elutata*) was taken at dusk flying round the stunted sallows. A few *Mesoleuca bicolorata* were beaten out of ash and alder in the Llanock Wood, and the same wood gave *Lomaspilis marginata* in fair

numbers. *Xanthorhoë montanata*, *X. fluctuata*, *X. rivata* and *X. sociata* were common everywhere. I have not noticed *Xanthorhoë galiata* here this year. This insect is by no means uncommon with us as a rule. A few *Triphosa dubitata* were taken in flight at dusk. *Thamnonoma vauaria* was common at light. *Lygris associata* and *Cidaria pyraliata* swarmed after dusk on rushes, whilst *Lygris testata* was not uncommon. A single worn *Cilix glaucata* a rather scarce insect in this district, was taken in flight at dusk. *Bryophila perla* was fairly common, at rest on stone walls, as were *Nudaria mundana* and *Triæna* (*Acronycta*) *psi*. Sugar was a failure, nothing but the very commonest species were attracted. Searching rushes after dark, which was so successful last year, was also a failure, only yielding such common species as *Xylophasia rurea* and *X. monoglypha*, *Barathra brassicae*, *Miana strigilis* and *M. fasciuncula*, *Rusina tenebrosa* in fair numbers, and several *Agrotis exclamationis*, *Triphaena pronuba*, *Noctua augur*, *N. brunnea*, *N. primulae* (*festiva*), *N. rubi*, *N. plecta* and *N. xanthographa*. I was not fortunate enough to take *Noctua ditrapezium* this year, a single example was taken at flowering rushes last year. *Calymnia trapezina* and *Phlogophora meticulosa* were common everywhere, but even they were far outnumbered by *Charaeas graminis*, which simply swarmed on the hills. A fine and varied series of *Hepialus sylvina* was taken at rest on grass stems in wood clearings, some of the ♀ s were very small, hardly larger than *Hepialus hecta*, but the majority of the ♀ s were very large and well marked.

Amongst the smaller fry *Hypena proboscidalis* swarmed amongst nettles in company with *Botys fuscalis*, *Ebulea crocealis* and *E. sambucalis*, *Pionea forficalis*, *Scopula lutealis*, *S. prunalis* and *S. olivalis*. *Chilo phragmitellus* was fairly common. *Crambus pratellus*, *C. falsellus*, *C. pascuellus*, *C. perlellus* and its var. *warringtonellus*, and *C. selasellus* were abundant in their haunts. A few *Crambus hamellus* and *C. latistrius* were taken, as well as two or three *Crambus pinellus*. I take this last species every season in these valleys, but never more than two or three examples each year. It appears to haunt swampy localities. I have only taken them at night, as a rule in flowering rushes. A single example of *Phycis fusca* was found at rest on a stone wall. *Scoparia dubitalis* and *S. mercurella* were very common everywhere.

During July I paid two visits to the Forest of Dean, a district which was new to me. The Speech House section of the forest was chosen. Leaving Abertillery at 7.40 a.m. on the morning of July 1st, I arrived at Speech House, which is in the heart of the forest, about 12.30 p.m. The day was very fine and hot and insect life was very abundant. By far the commonest butterfly was *Aphantopus hyperantus*, which was flitting about every glade and open space in scores. They were in fair condition and a nice series was taken. I netted and examined a large number in the hope of taking var. *lanceolata*, but was not fortunate enough to take this or any other variety. *Argynnis adippe* was very common and in splendid condition. Two or three very fine *Dryas paphia* were netted, one ♀ is the finest example I have ever seen of this species. *Argynnis aglaia* appeared to be rare, I only saw a single damaged ♂, which was not taken. A few worn *Brenthis selene* were noticed. *Aglais urticae* was common, but *Vanessa io* seemed to be rather scarce. *Epinephele jurtina* (*ianira*) was quite a rarity in comparison with the swarms of *A. hyperantus*. *Coenonympha pamphilus*,

Rumicia phlaeas and *Adopaea flava* (*thaumas*) were all common. A fine ♀ *Boarmia roboraria* was found resting at the foot of an oak. I spent a considerable time in further search for this fine Geometer, but only succeeded in finding two more, both at rest low down on the trunks of oak, one was a worn ♂ and the other a fine ♀. I kept this ♀ for ova in a large chip box for three days, during which time about sixty ova were laid in batches of 15 or 20. The larvæ hatched out in about 10 days, but unfortunately in spite of all the care I could bestow on them they all died. Beating bushes produced most of the common Geometers in numbers and single examples of *Geometra vernaria* and *Hemithea strigata*. Several Tortrices were beaten out of bushes and rough herbage. *Zanclognatha grisealis* was fairly common. A few *Pyrausta purpuralis* in fine condition were netted as they flew swiftly about in the hot sunshine. On the whole, this, my first visit to this promising locality was a disappointment, insects were very numerous in individuals, but scarce in the variety of species, but this has always been my experience, a first visit to any locality is seldom productive.

The second visit was paid to Speech House on the 13th. I hoped to get *Apatura iris*, which is said to occur in this district, and *Bithys quercus*. I devoted practically the whole day to searching for these two butterflies, but did not so much as get a glimpse of either. *Aphantopus hyperantus* and *Argynnis adippe* were as abundant as on my former visit, but the majority were now decidedly passé. Nothing fresh was noticed except a single *Nola cucullatella* at rest on the trunk of an old apple tree. I hope to have a few days collecting in the Forest of Dean during the coming season, with better results.

During the first fortnight in August I was very busy arranging my work, preparatory to going on my summer holidays, so I was unable to do much collecting. A little collecting at dusk was done, but that was all. On August 8th, I had the pleasure of taking an insect I have specially searched for every season up till now, but failed to obtain, viz., *Stilbia anomala*. I have always felt that this species ought to occur in these valleys. On the 8th I went to a small valley about three miles from Abertillery, arriving there at 7 p.m. The very first insect I took was a fine ♂ of the much sought for *S. anomala*. In a few minutes half-a-dozen more males were taken, as they flew up and down a steep hillside in their somewhat geometer-like flight. Further visits on the 9th, 10th, and 12th gave several more ♂s, but not a single ♀. On the 13th I took the first ♀, about 8 p.m. as it flew past me close to the ground. Three more ♀s were netted in the same manner. Searching for the ♀s, with the aid of a lantern, in the heather, was a total failure, not a single specimen was seen. The flight of the two sexes is totally different. The flight of the males, which takes place from about 7 to 8 p.m., is practically over before the first ♀ puts in an appearance. It is almost too dark to distinguish anything by 8 p.m. at this time of the year, so the lack of light, combined with the dark colour and low swift flight of the ♀, may account for the comparative scarcity of ♀ *Stilbia anomala*. This species appears to be exceedingly local, and my specimens were taken within a radius of 50 yards, not a single example was seen outside this restricted area. Most of the common *Noctuae* were abundant during the first fortnight in August, *Noctua xanthographa* was a regular nuisance, three out of four insects netted were of this species.

Splitting the stems of the tall marsh thistles for pupæ, was a nasty job and not at all successful, a single pupa of *Ochria ochracea*, rather a scarce insect in this neighbourhood, was all that rewarded my efforts.

On August 15th I left Abertillery for my summer holidays, going to my home at Bickley, in Kent, where I stayed until September 2nd. I did not attempt to do any sugaring, as it had been such a failure at Abertillery and confined myself to searching fences and tree trunks during the day and going round the lamps at night. Amongst the butterflies *Pieris brassicae*, *P. rapae* and *P. napi*, *Gonepteryx rhamni*, *Vanessa io*, *Coenonympha pamphilus*, *Rumicia phlaeas* and *Polyommatus icarus* were all common, a few *Pyrameis cardui*, *Pararge megaera* and *Augiades sylvanus* were seen. I did not see a single example of the second brood of *Celastrina argiolus*, which is generally common here in August.

Searching fences and tree-trunks gave *Hepialus sylvina*, *Orgyia antiqua* (♀s at rest on their cocoons), *Opisthograptis luteolata* (common), *Ennomos quercinaria*, *E. alniaria*, *E. fuscantaria* and *E. erosaria*, *Eupithecia vulgata* (common), *Xanthorhoë fluctuata* (in abundance), *Coremia ferrugata*, *Camptogramma bilineata*, *Acidalia virgularia* (common), *Ortholitha bipunctaria*, *Thera variata*, *Drepana falcataria*, *Lophopteryx camelina*, *Asphalia diluta*, *Bryophila perla*, *Xylophasia monoglypha*, *Charaeas graminis*, *Luperina testacea* (common), *Barathra brassicae*, *Triphaena pronuba*, *Noctua plecta* and *N. xanthographa* (common), *Tiliacea* (*Cirrhia*) *citrago*, *Calymnia trapezina*, *Phlogophora meticulosa*, *Plusia gamma*, *Amphipyra tragopogonis*, *Catocala nupta*, *Crambus pratellus*, *C. perlellus*, and *C. geniculeus* (abundant).

Insects were very common on most nights round the gas lamps. Can any entomologist explain why light pays in some districts and not in others? I have gone round the lamps, in the Abertillery district, night after night, in the middle of the season, without seeing a single moth. By far the commonest insect round the gas lamps at Bickley, during the last fortnight in August, was *Crambus geniculeus*, every lamp gave three or four specimens, and on one lamp no less than 15 were counted. *Noctua xanthographa* came a good second. This insect swarmed on one or two sultry nights. The following insects were taken at light between August 16th and September 1st. *Ourapteryx sambucaria*, *Opisthograptis luteolata* (common), *Ennomos quercinaria* and *E. alinaria*, *Perizoma unifasciata*, *Acidalia virgularia* and *A. marginepunctata*, *Eupithecia oblongata* (common). *E. albipunctata*, *E. absinthiata*, *E. sobrinata*, *E. linariata*, *E. pulchellata*, *Coremia unidentaria* and *C. ferrugata*, *Xanthorhoë fluctuata* (common), *Camptogramma bilineata* (common), *Mesoleuca ocellata*, *Anaitis plagiata*, *Drepana binaria*, *Cilix glaucata*, *Leucania pallens*, *Hydroecia micacea* and *H. nictitans* (common), *Xylophasia monoglypha*, *Epineuronia popularis* (the ♂s were very common, 3 ♀s were found at rest on fences near lamps), *Charaeas graminis*, *Luperina testacea*, *Barathra brassicae* (common), *Agrotis puta*, *Noctua plecta*, *N. c-nigrum*, *N. xanthographa* and *N. rubi*, *Cirrhia citrago*, *Phlogophora meticulosa*, *Plusia gamma*, *Amphipyra tragopogonis* (common) and *Catocala nupta*. Amongst the "micros" were *Crambus geniculeus* (abundant), *C. pratellus* and *C. selasellus*, *Pionea forficalis* (common), *Pyrausta purpuralis* (common) and *P. ostrinalis*, *Herbula cespitalis* (common), *Endotricha flammealis*, *Scopula olivalis*, *S. lutealis* (common) and *S.*

prunalis, *Botys ruralis* and *Ebulea crocealis* (common), *Nomophila noctuella*, *Platyptila gonodactyla* and *Pterophorus monodactylus*.

On three or four nights insects swarmed at "honeydew" on the trunks of a small clump of Wych-elms, no less than seven *Catocala nupta* were counted on one small tree. All the common *Noctuae* found at light were seen at this "honeydew" with the addition of *Calymnia diffinis* and *Triphaena ianthina*.

I had a day's collecting on Folkestone Warren on August 24th and another day at the same famous spot on the 31st. My principal object was to get a good series of *Agriades thetis* (*adonis*). I was very successful, a fine series of this brilliant blue, in perfect condition, was taken. On the 24th they were just coming out, a few ♂s and a single ♀ was all I could get, but on the 31st the insect was fully out and very plentiful. I examined some scores for aberrations, but failed to find anything out of the ordinary. This species was by far the commonest blue on the Warren. Several *Polyommatus icarus*, *Rumicia phlaeas*, *Aglais urticae*, *V. io*, *Gonopteryx rhamni*, *Pyrameis cardui*, *Coenonympha pamphilus*, *Pararge megaera* (worn), and *Epinephele tithonus* were seen. Beating bushes gave *Acidalia ornata*, and *A. marginepunctata*, *Xanthorhoë unangulata*, *Melanthia procellata*, *Ortholitha limitata* and a few other common Geometers. A single worn *Aspilates gilvaria* was kicked out of long grass. *Pyrausta purpuralis* and *Herbula cespitalis* were common, one or two *P. aurata* were taken, and also a *Pyrausta* I could not identify. I sent this insect to Mr. Bethune-Baker, who very kindly identified it for me, as a melanitic variety of *Pyrausta aurata*. Several "micros" were taken. A search which was made at dusk for "plumes" was not very successful. I took a few *Stenoptilia pterodactyla* and a single *Amblyptilia cosmodactyla* (*acanthodactyla*.) Several of the commoner species of *Crambus* were very much in evidence. Two or three *Crambus inquinatellus* were taken.

On August 29th I paid a visit to the Deal sandhills. Unfortunately the day was very windy and insects were scarce. Amongst the butterflies *Pieris brassicae* and *P. rapæ*, *Gonepteryx rhamni*, *Pyrameis atalanta*, *Vanessa io*, *Aglais urticæ*, *Coenonympha pamphilus*, *Rumicia phlaeas* and *Polyommatus icarus* were noticed, but none were common except the last two species. A few very large and bright examples of *R. phlaeas* were taken. I had hoped to get a few *Colias edusa* and possibly *C. hyale* but did not see a single example of either species. In the sheltered hollows *Mesotype virgata* was common and in good condition. In spite of the high wind which made capturing this little moth somewhat difficult I managed to get a nice series. Under a gorse bush I found a large, but very dilapidated ♀ *Sphinx convolvuli*. I might mention here that on my return to Abertillery I had a ♂ *Sphinx convolvuli*, which had been attracted to light at a window, brought to me. This insect was taken about August 20th and must have been in almost perfect condition when captured. Unfortunately it had been kept alive in a small cardboard box and allowed to batter itself to pieces. I have never seen or heard of this species occurring in these valleys before, but this appears to have been a "*convolvuli*"-year, which may account for a straggler of the species turning up at this out of the way spot. I spent a considerable time in searching what appeared to be suitable spots for *Lithosia*

lutarella, my principal object in making the pilgrimage to Deal, but I was not fortunate enough to find this local little moth.

During September practically all my collecting with the exception of two or three afternoons spent in fruitless searching for *Lithomoia solidaginis*, an insect which ought to occur in this district, was done on heather. To make up for its failure during the summer, "sugar" now attracted insects in great numbers, *Amathes helvola* and *A. litura*, *Orrhodia vaccinii* and *Miselia oxyacanthae* were very common and in first rate condition. Half a dozen perfect examples of var. *capucina* were taken. Several *Agrotis segetum* of a second brood put in an appearance. I was surprised to take a very fresh *Agrotis exclamationis* on September 15th. *Amathes* (*Mellinia*) *circellaris* and *Caradrina quadripunctata* occurred in fair numbers, together with a few *Triphaena comes* and *T. pronuba*, *Euplexia lucipara*, *Amphipyra tragopogonis*, *Noctua glareosa*, *Agrotis ypsilon*, *Amathes lota*, *A. macilenta* and *A. lychnidis* (*pistacina*), *Orrhodia ligula*, *Calocampa vetusta* and *Eumichtis protea*. *Phlogophora meticulosa* was a perfect nuisance, every patch had three or four of this very beautiful but common moth on it. On September 16th a very large and fresh *Emmelina monodactyla* was taken at sugar, and several other "micros" were taken in the same way during September.

On September 9th, I took a run down to Weymouth, hoping to take *Colias edusa* and *C. hyale*. I was again disappointed not a single example of either species was seen. The intense heat of the summer had burnt up all vegetation and insects were scarce. A few worn *Agriades thetis* (*adonis*) ♀ s, *P. icarus* and *R. phlaeas* were noticed. *Plusia gamma* was very common. A few *Pyrausta purpuralis* were collected from the rough broken ground at Preston cliffs, and the same spot gave me a couple of *Nomophila noctuella*. A very large and bright *Lygris testata* was beaten out of a clump of sallows. A few wore *Pyrameis atalanta* and two or three fine *P. cardui* were also noticed.

After the first week in October the weather broke up completely, a few nights were spent at "sugar" and at what little ivy we have in this neighbourhood, but nothing beyond the common autumnal insects were seen. Two or three afternoons were spent in collecting *Oporabia dilutata* and *Hybernia aurantiaria*, long and varied series were taken of each species.

After the middle of October the weather became so bad that further collecting was impossible. The total results of the season's work has not perhaps been great, I have probably done no better than the majority of entomologists, but the season of 1911 will always be a memorable one for me on account of *Stilbia anomala*, an insect I have at last taken after seven years persistently searching for it.

Records of Local Coleoptera. I. Geodephaga.

By G. W. NICHOLSON, M.A., M.D., F.E.S.

As I have been taken to task for not having recorded the more interesting beetles I have, from time to time, had the good fortune to capture, I now propose to make up for lost time, and hope that the new localities may be of some interest and use to other entomologists. For the sake of completeness references will be given to the few records that I have already published, which will be included in the present

list. Most of my Irish captures will be found in the *Irish Naturalist* for 1910 and 1911. As Mr. Donisthorpe has already given a list of the species we found together last June in Scotland, these will be omitted. I find that there are many insects I must mention, and therefore propose to deal with the various groups separately. I will begin with the *Geodephaga*.

Cicindela maritima, Dej., Sandwich, Kent, on sandy coast in numbers. *Cychrus rostratus*, L., its occurrence in Richmond Park is, perhaps, worth mentioning. *Pelophila borealis*, Pk., Lough Ramoz, Co. Cavan, in profusion. *Clivina collaris*, Hbst., Reigate, Surrey. *Dyschirius angustatus*, Ahr., Littlestone, Kent, one on sand by sea-shore. *Bembidium bruxellense*, Wesm., common at Balrath, Co. Meath; one in the middle of the town of Cambridge. *B. decorum*, Pz., Burford Bridge, Surrey (one). *B. affine*, Steph., Cromer, Norfolk. *B. 4-pustulatum*, Dej., Pulborough, Sussex (*Ent. Mo. Mag.* 1909.) *B. fumigatum*, Duft., Gravesend, not common. *B. clarki*, Dawson, Pulborough. *B. aeneum*, Germ., Cloverhill, Co. Cavan, common. *B. 5-striatum*, Gyll., common in an old stone wall at Balrath. *Cillenus lateralis*, Sam., Strood, Kent, common in stones on bank of Medway. *Trechus micros*, Hbst., Burwell Fen, Cambs, one in mole's nest; Alphington, Devon, on two occasions in moles's nests, once in numbers. *T. rivularis*, Gyll, five by treading mud on Wicken Fen, August 21st, 1910. The light was failing as I reached the spot, and I had to leave early the next morning; otherwise I am certain I should have got a long series. *T. secalis*, Pk., Golder's Green, Middlesex, and Leatherhead, Surrey. *Panagaeus crux-major*, L., not uncommon on Burwell Fen. *P. 4-pustulatus*, Stm., Alphington, running on roads in some numbers on May 15th, 1910. *Badister peltatus*, Pz., not uncommon at edges of a pond at Pulborough. *Licinus silphoides*, F., occasionally abundant under lumps of chalk near Gravesend. *L. depressus*, Pk., Brighton. *Harpalus parallelus*, Dj., Gravesend. *Acupalpus brunnipes*, Stm., Wintney Heath, Hants. *Anisodactylus atricornis*, Steph., one at top of cliffs at Cromer. *Amara consularis*, Duft., Burwell Fen. *Pterostichus aethiops*, Pz., four specimens under bark of a dead Scotch fir at Crowcombe, Somerset. *Platyderus ruficollis*, Marsh., Gravesend, Strood, Wimbledon Common. *Anchomenus versutus*, Gyll., common in a reedbed by the canal at Woking, in 1906, but has not occurred to me there since. *Metabletus truncatellus*, L., common on Burwell Fen. *Dromius agilis*, F., Epping Forest. *D. 4-signatus*, Dj., one under the bark of an old pole in a brickfield at Maddingley, Cambs., February 24th, 1907. *Aëtophorus imperialis*, Germ., occasionally in profusion in a bed of reeds at Gravesend (*Ent. Mo. Mag.*, 1906). *Polystichus vittatus*, Brul., Gravesend and Strood.

(*To be continued.*)

On a Malformation of Hydroecia paludis. (*With Plate.*)

By T. A. CHAPMAN, M.D.

The Rev. C. R. N. Burrows has handed to me for examination a specimen of *Hydroecia paludis* taken at Mucking, that he came across in mounting examples of the genitalia of *Hydroecia*, in making his classical researches into the *nictitans* group. With his customary caution he does not make any assertion as to what it is, or

how it came to exist, though he thinks that it may have some gynandromorphous characters.

The specimen is extremely puzzling, and I don't feel at all sure that I have fully succeeded in understanding it. I cannot detect in it any distinctly female structures. I incline to believe that it belongs to the same class of abnormalities as those that I showed* resulted from producing a small cicatrix between the 9th and 10th abdominal segments medio-ventrally in the larval state. The result was that structures developed from Herold's corpuscle never came to the surface. In the specimen before us Pl. IV, fig. 1. (Fig. 2 shows normal appendages of *paludis* ♂) the greater part of the clasps and the aedœagus are still in the interior, but there is some confusion of parts, that I can only explain by supposing that not only was the exit for these parts blocked in some way, but that the organ of Herold, or perhaps before it was formed, the tissue going to its formation, was in some way injured or torn, or some portions lost. Thus we find the tegumen and ring present, a little distorted, but practically complete. Comparing figs. 1 and 2, we find (1) the uncus, (2) the scaphium, (3) the peniculus (Pierce), and (4) a portion that I am not familiar with, and for which I do not think Pierce has provided us with a name. The saccus is also present, though obscured in the photograph by the density of superimposed parts. As regards parts from the interior (Herold's corpuscle), we have (9) a somewhat confused and dense mass, that certainly contains the greater part of two clasps, and probably the pupal covers of these and some irregularly developed portions, whose eccentricities I ascribe to the original injury, whatever it was. Further proof of this injury is found in there being only one clavus (5), the other being absent, unless it is included in the confused mass of the clasps, but if so it is quite undeveloped; I think there is little doubt it is absent. The aedœagus is present (7), of almost normal development, and the cornuti are within it in quite normal condition.

The piece 8 puzzled me very much, and I am not yet very positive about it, but I believe it is a portion of the clasp, of what I think Pierce calls the sacculus, at any rate the portion marked 8 in fig. 2. It is not a torn portion of a developed clasp, but must have arisen from a portion of the clasp separated whilst still hardly developed, as it has a complete uninjured surface all over. The two curious organs (6) are also difficult to understand. They are symmetrical and well developed, yet there is nothing very like them in fig. 2. They seem to be portions belonging to the ring, and not to any of the involuted portions forming Herold's corpuscle. My experiments, already referred to, were made in *L. dispar*, where the parts are simple as compared with *Noctuae*, so that they do not help us here. I imagine they are parts not belonging to Herold's corpuscle, but, remaining external, on the return of the clasp to the surface become part of it. They are very close to 8 that is probably part of a mutilated clasp, but whether they represent either of the portions of the clasps, to which I have put a 6 in fig. 2, I cannot say.

I add as fig. 3 a figure of the ♀ structures, none of which appear to be present in fig. 1.

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* *Trans. Ent. Soc. Lond.*, 1912.

DESCRIPTION OF PLATE IV.

1. Malformed appendages of *Hydroecia paludis* × 12½.
2 and 3. Normal ♂ and ♀ appendages, × 12½, for comparison.

The Malformation of the Genitalia of Hydrœcia paludis. (*With one plate*).

By F. N. PIERCE, F.E.S.

The rudimentary organs of The Rev. C. R. N. Burrows' wonderfully malformed specimen of *Hydroecia paludis* go a long way to confirm the opinion I have previously held, that the various parts of the genitalia are originally separate and distinct organs in the various species, but are often fused together, and in many cases this fusion sinks the identity of the organ to such an extent as to make the student consider the parts as additional organs, whereas they are either more highly developed or are thrown back to their original form.

In the specimen under consideration the uncus No. 1 is normal; the anus No. 2 (called by Dr. Chapman the scaphium) is normal; the peniculus No. 3 is normal; Dr. Chapman's No. 4, which in the photograph appears to be a separate arm, is merely the thickening of the edge of the tegumen, from which springs the peniculus. Below these parts we enter into difficulties, because the remainder of the organs are in a rudimentary or partially formed condition.

The valva is usually considered to be a single organ, and I have been criticised in giving names to the parts; for example sacculus, harpe (=clasper), etc. This is more apparent than real. The valvæ are, in fact, composite structures made up of a number of distinct and separate organs springing from separate bases, as the specimen under notice well illustrates. And in order to piece together the valvæ we must collect the parts. It is curious to notice in the mount these parts are largely reversed, that is, they point towards the head instead of the tail of the moth as normally.

The paired organs, No. 6 of Dr. Chapman's Fig. 2, are the sacculus; this is often quite separate from the valvæ in other species, and evidently is a separate organ previous to fusion; below this is the left hand valva proper, No. 8 (without the cucullus, which is evidently normally attached to the costal arm). It will be noticed there is only one valva developed, that of the left side; in the mount the inner margin is above, not below, the spines from the edge being quite normal and identical with those of *paludis*. The saccus (vinculum) is normal.

We now come to the organs that are contained inside the body. In respect to the valva, so far the parts identified are the valva proper, and the sacculus. Of the missing parts the cucullus is enclosed in its sac, and in the photograph is immediately under the saccus and extends downwards, projecting from the costal arm. Towards the base of this sac is the editus. The harpe (clasper) is very rudimentary, but the shape is plainly visible with its short heel and long pointed toe. There is, as Dr. Chapman states, only one Clavus No. 5, and the Ædœagus No. 7 is practically normal, with its vesica and cornuti of *paludis* form, and connected therewith is the fairly normal juxta, the front plate as well as the scobinated membrane behind the Ædœagus being well developed. The remaining structures consist of

an almost round ball joined to an irregularly shaped sac. It is this structure and the absence of largely one side of the male genitalia, *viz.*, the clavus, valva, etc., that evidently led Mr. Burrows to believe that this was a gynandromorphous specimen, and I incline to the same belief. In the upper sac there are apparently the rudimentary valves of the ovipositor. I have usually found these inside the bodies of gynandromorphous specimens I have previously examined, and attached to this is an aperture that might be the genital opening with its tube leading to the bursa, but this part is too obscure for me to decide. If these are not the female organs the question arises what are they? as one half of the male organs are accounted for and they are certainly not the other half.

Notes on the Lepidoptera in and around Gibraltar, 1911 and 1912.

By Lieut. G. C. WOODWARD, R.N.

On October 15th, 1911, I went over to Campomento, a place in Spain about three miles from the gates of Gibraltar. There I found *Colias edusa* in good condition and very common, and *Pyrameis cardui* was very common, indeed was seen everywhere, but rather worn. I took two specimens of *Pieris daplidice* in good condition, but did not meet with any more. *Aricia medon* (*astrarche*) was common, but badly worn, and one very large specimen of *Lampides boeticus* was captured. Two very fine examples of *Rumicia phlaeas* var. *eleus* were netted, as well as two rather worn *Hesperia proto*. On visiting this locality a week later I found very little insect life about, probably owing to the weather having become much colder, succeeding a summer which had been exceptionally hot with hardly any rain.

Two specimens of *Sterrha sacraria* were taken settled on the ship's awning, no doubt attracted by the light, and on December 11th a specimen of *Hippotion celerio* was also found at rest on the awning.

The little moth *Enconista* (*Selidosema*) *unicoloraria* is extremely common at Campomento, where it can be beaten in numbers from the undergrowth. On February 22nd I again went to this locality and took several *Anthocharis belemia*, of which both males and females were common, but seemed to be getting a little worn. One specimen of *Colias edusa* was taken, a very small and very dark example, with the hindwings almost black. In some cultivated ground I noticed *Pyrameis cardui*, *P. atalanta*, and *Pararge aegeria*, typical forms, but it seemed a little early for this last species as yet.

On March 1st, on the Rock of Gibraltar, I saw several male *Gonepteryx cleopatra* flying very sluggishly. I did not have any net with me but managed to catch one in my hat. Unfortunately I lost it in the attempt to box it. *Thais rumina*, *Pieris brassicae*, *Pararge megaera*, *Colias edusa*, *Pyrameis cardui*, *P. atalanta*, and *Pieris napi* were all common, as well as *Sesia stellatarum*, which last species appears to be common here all the year round.

On March 21st, on another visit to the Rock, I took three examples of *Gonepteryx cleopatra*, two males and one female and several *Euchloë euphenoides*, all males. At the same time I observed *Pyrameis cardui*, *Pararge aegeria*, *P. megaera*, *Pyrameis atalanta*, *Pieris brassicae*, *P. napi* and *Thais rumina*.

On March 22nd I caught the 8.10 boat to Algeciras and went by

train to Castillar, about an hour's run, situated at the far end of the cork woods and about 20 miles from Gibraltar, and walked back to Campomento. *Thestor ballus*, both males and females, were in great profusion in a meadow about half a mile from the station, all in good condition. Further on in the cork woods I took *Gonepteryx cleopatra*, both males and females, but the former sex predominating. This species appeared to be very common in the woods, but difficult to capture. It was very fond of the flower of the Greater Periwinkle (*Vinca major*), which grows in these woods in great profusion. Only two specimens of *Leptosia sinapis* were met with. This species appears to be very local here, only frequenting certain spots in the woods, but at this date it was not properly out yet. Further on I took two Hesperiids, which I think are *Erynnis alceae*, they were flitting about on the sandy patches in the hot sun. *Euchloë euphenoides* was in great profusion, the males predominating, indeed the ♀ s were rather scarce as I only took three specimens. I met with one specimen of the Arctiid, *Arctia latreillei*, resting on bracken; it was a fresh specimen, and the only one I have ever seen here. A light coloured example of *Rumicia phlaeas* was met with evidently just out of pupa. We now came to a piece of moorland country, where insect life did not seem very abundant, but lizards were plentiful, especially the green species. Bird life was also very abundant. Towards San Roque, a town about six miles from Gibraltar, insect life was again in evidence, and I took two specimens of *Anthocharis* (*Euchloë*) *belia* var. *ausonia* ab. *esperi* and observed several more, but this species is difficult to capture owing to its rapid flight over broken ground. After passing San Roque nothing was observed, as we were traversing rather barren ground, and we arrived at Campomento about 4.30 p.m., having covered about 18 miles. Among other species noted during the day were *Thais rumina*, *Callophrys rubi*, common, *Pieris brassicae*, *P. rapae*, *Pyrameis atalanta*, *P. cardui*, *Pararge megaera*, and *P. aegeria*, typical form, all very abundant. The day was cloudy with bursts of brilliant sunshine, but not so hot as to make walking tedious.

On March 24th, while the ship was at anchor at Gibraltar, I took two specimens of *Phryxus livornica* which had flown on board.

On April 6th I again went out to Castillar by train and walked back to Gibraltar, and did not go straight through the cork woods as before, but kept more to the open country. The day was cloudless but with a strong wind blowing, which tempered the heat somewhat. I took two specimens of *Papilio podalirius* and one of *P. machaon*, all three large specimens and apparently only just emerged. These were the only examples of the genus Papilio I have seen. *Thais rumina* was common, but very much worn, and of *Leptosia sinapis* I took a good series of both sexes. *Euchloë cardamines*, males and females, were common and just out, and both sexes of *E. euphenoides* were also common. I observed one or two *Gonepteryx rhamni*, *G. cleopatra*, both sexes common, *Pyrameis cardui*, and *P. atalanta*, both common, *Pararge aegeria*, *P. megaera*, and *Rumicia phlaeas*, all common, *Thestor ballus*, both sexes common locally, *Callophrys rubi* was very common, *Polyommatus icarus* and *Aricia medon* (*astrarche*), not very common.

On April 17th I captured a specimen of the large Saturniid, *Saturnia pavonia-major*, which flew to the electric light on board.

On April 20th I again took the train to Castillar and walked back

to Algiciras; about half the distance was through the cork woods over level ground, some part of it marshy and the other half over cultivated country. This was a most disappointing day, as it was bright and sunshiny, warm without being too hot, but there was hardly an insect to be seen anywhere. I took two specimens of *Rumicia phlaeas* var. *eleus*, just out in perfect condition, a specimen of *Abraxas pantaria* caught in a spider's web, an example of *Anthrocera boetica* and one *Taeniocampa stabilis*.

The Value of Protective Resemblance in Moths.

By Lieut.-Col. N. MANDERS, R.A.M.C., F.E.S.

Mr. Colthrup, in the May number of the *Ent. Record*, has raised an important question by his article on "*Polia chi* and Protective Resemblance." For many years past a controversy has been carried on regarding the edibility of butterflies and the attacks of birds, and the assumption that these occur, and to such an extent as to produce a serious struggle for existence, has been the cause of the founding of two most interesting and important theories of mimicry by Bates and Müller.

A serious objection to them has been the assertion, often vigorous, that birds seldom attack butterflies, and in view of this Mr. Guy Marshall, a well known supporter of both theories, collected all available evidence and published it in *Trans. Ent. Soc. Lond.*, 1909, p. 329.

Confining ourselves to the English butterflies, some sixty in number, he ascertained that fifty per cent. were known to be attacked, and there is little doubt that in the other fifty their rarity was the cause of no observations being made. The interesting point was that no selection in the choice of victims was apparent, and there was no record that any species of bird, with the possible exception of the Kestrel, systematically feeds on butterflies. For my own part I confess I am of the opinion, that if any bird fed on butterflies to such an extent as to produce, through natural selection, a change of pattern or colour, such would be known to some of our entomological or ornithological students.

Mr. Colthrup now goes a step further, and throws a doubt upon the protective colouring of moths being produced by such attacks. Certain it is that the human eye can be trained to see moths and other insects at rest which are quite unnoticed by the untrained eye, and if a human being, for his own instruction or amusement, can detect these insects in their chosen environment without particular difficulty, they can have little chance of escaping notice from the keen eye of a bird. I am very much inclined to think, however, that birds do not observe moths when at rest, and that so long as a moth remains absolutely still, whatever its environment, it is not noticed by birds or reptiles. The same thing occurs among animals, even large animals such as elephants and bison, as I can testify, are extremely difficult to see, when they keep absolutely immovable, as they usually do when conscious of danger. It is movement which is as fatal to them as to the moths.

Most entomologists have personal experience of swallows and other birds snapping up moths, when they are beating the hedges, and that moths are largely eaten by many birds cannot I think be doubted; but

the evidence we require is whether they systematically search for them when settled on walls, tree-trunks, and the like. Mr. Colthrup doubts that they do, with the exception perhaps of the Tits; I am inclined to agree with him, but my experience of English moths is limited. If a moth with closed wings resembling a lichen is as free from attack on a brown plank as it is on a lichen covered tree-trunk (a somewhat bold assertion) of what use is its protective pattern and how did it become evolved? That it obtains some protection is hard to deny, but how much is a difficult matter to estimate.

The acknowledgment that even a slight variation in colour or pattern is advantageous is sufficient in the minds of many to confirm them in their belief in natural selection, particularly when they remember the infinitely slow methods of Nature, and the unlimited time at her disposal. The case has been well put by Wallace.* "In every department of Nature colour is one of the most variable of all characters, and it is this variability, together with the enormous importance to all insects of concealment from, or protection against, their innumerable enemies, especially in tropical countries, that has enabled those minute and striking resemblances to be brought about that were long the greatest puzzle to those naturalists who had the opportunity of observing them in their native haunts. The facts already given with regard to the universality of variation, enormous powers of multiplication and incessant weeding out of the unfit, afford a complete explanation of the phenomena of colour, in all their variety and beauty, which no other adequate explanation has ever been set forth, or even attempted." If there is one thing more than another which has impressed me, during my twenty years' wandering in the tropics, it is the haphazard way in which death comes to the animal world. From the elephant downwards it has always seemed to me an entire matter of chance; though it might be mathematically proved that in the long run an animal most fitted to its environment would have an advantage, yet, life in the jungle is such a lottery, that, so far as I have observed it, it is merely a toss up as to what lives or what dies. It is true that a tiger, acting alone, will avoid attacking a full grown bull bison, and will take a calf in preference, but what calf is taken is a matter of chance; so also two tigers acting together will pull down a bull bison but it is a matter of chance as to what bull they first happen to come across.

My own experience of birds eating moths in large numbers is confined to Ceylon, but the conditions were entirely artificial. It was at the time of the internment of the Boer prisoners in 1901-2. Their camp was in a fold of the hills at an elevation of 4,000 feet in an open country. The barbed wire entanglement was lighted up by large arc lamps on posts twenty feet high at intervals of about fifty yards, and gave a very fine illumination. For some reason they failed to attract any large number of moths except in late October and early November; with the setting in of the North-East Monsoon, towards the end of this month, a dense fog arose every evening, which blotted out everything. Fortunately for the moth population the attractive season was remarkably short, but while it lasted the state of affairs

* *The World of Life, as Visualised and Interpreted by Darwinism*, A. R. Wallace, *Fortnightly Review*, March, 1909.

baffles description. In no part of the world have I seen such a wonderful sight! the moths swarmed in millions round the lamps; Boers and Britons forgot their differences and struggled good humouredly on either side of the entanglement for specimens. To such an extent was moth catching indulged in that it had to be stopped as there was a distinct danger of some of the prisoners escaping in the confusion. In consequence no one was allowed round the lamps from 8 p.m. to 6 a.m. It is difficult to give any idea of their numbers; sometimes the huts were covered with white moths which gave the appearance of a snow storm, at others carts and other vehicles seemed to be covered with highly variegated turkey carpets composed of innumerable moths. On one lamp post I counted sixteen specimens of a Death's Head (*A. lachesis*) in a space five feet high by six inches broad, and they were almost equally numerous on each of the fifty or sixty lamp posts. The sentries' beats were a churned up mass of wet mud and crushed bodies and the ground was strewn for yards round with the dismembered wings of the bats' victims. Large numbers of birds including crows appeared at the first streak of dawn and when I arrived at six o'clock the smaller birds were already gorged. I was much interested in watching the swallows and sparrows, which flew against the lamp posts flapping their wings vigorously, thereby causing the moths to fly off, when they were promptly caught.

It was remarkable that whereas birds of all sorts came in numbers to this moth feast, yet, in the same place and at the same time during the annual migrations of butterflies, which passed over the country in crowds, I never saw a bird attempt to catch one. This, no doubt, was partly due to the rapidity of the butterfly's flight, but nevertheless when settling for the night they were equally free from molestation.

There is no doubt that moths are more frequently captured than butterflies, and this because of their larger bodies making a more satisfactory meal. The point one more particularly wishes to emphasize is that the capture of an odd specimen here and there by a sparrow or other bird, though a matter of almost daily observation during the summer months, can have little or no effect on the general moth population, and certainly none in the production of a protective colouring by means of natural selection. What is required is a hunt for some bird or birds, which make moths a speciality in their dietary, and which show under natural conditions a marked preference for certain species. No doubt the task is a laborious and difficult one, but it has to be done if we wish to get a sure basis on which to build a theory likely to be true.

Notes on Collecting in 1911.

By C. W. COLTHRUP.

(*Concluded from page 96*).

On August 20th two *Melanippe galiata* (a dark form), two *Acidalia marginepunctata* and one *Polia chi* were found at rest on a railway bridge, and *Aglais urticae* emerged from pupæ taken at Brixham under copings of walls. In the evening the following species turned up at sugar:—*Noctua rubi*, *Leucania pallens*, *N. plecta*, *N. umbrosa*, *Mamestra brassicae*, *Caradrina ambigua*, *Hadena dissimilis*, *Agrotis puta*, *Bryophila*

muralis, *A. segetum*, *Triphaena orbona*, *T. pronuba*, *N. xanthographa*, *A. exclamationis*, *N. c-nigrum*, *H. oleracea* and *Phlogophora meticulosa*. *Dianthoecia carpophaga* continued to emerge through August and September, from Eastbourne and Croydon pupæ.

On August 23rd and subsequent days *Polia chi* was taken as already reported (anteà p. 124).

On September 2nd I journeyed to Margate for a three weeks' visit, where a good series of *Colias hyale* were taken (anteà vol. xxiii., p. 276). On the evening of the 3rd I visited the field where I found freshly emerged *Luperina testacea* so variable and plentiful in 1910. Three female *Luperina testacea* and a pair of *Hepialus sylvana* were the result, and subsequent visits proved equally disappointing. One wonders at the scarcity of this usually common insect. Had the exceptionally dry season baked the earth so that the imagines were unable to force their way out of the ground? On September 6th I experienced the great disappointment of the trip. Cycling along a road in the neighbourhood of Dover, I observed a lovely freshly emerged aberration of *Aglais urticae* sunning itself on a wayside flower. Nearly the whole of the fore- and hind-wings were suffused with black, by the shape, however, and the blue spots, I was able to identify it. I dismounted and had a splendid view of it, but had no net. My feelings may be better imagined than described. I had a shot at it with my hat and missed, of course. It rose and sailed on to the top of a bank where I followed it. A second attempt was more disastrous than the first, as the insect, now thoroughly scared, flew across a field of stubble with the writer in close attendance, and then over the only iron fence and house top for miles round. A big detour was made to get to the other side of the house but to no purpose. I returned to the spot on the following day and netted every *A. urticæ* I saw on the wing, but nothing approaching a variety was seen. I took, however, a nice series of the third brood of *Rumicia phlaeas*, all very typical except one specimen having large blue spots on the hindwing. On September 8th I had the good fortune to take a male aberration of *C. hyale* in which the discoidal spots on both fore- and hindwing undersides were radiated. On September 12th both ♂ and ♀ *Neuronia popularis* and a ♀ *C. cubicularis* were taken at light. The latter laid ova on the following day, which hatched on the 20th. The larvæ fed up rapidly on dandelion and groundsel, went to earth and spun cocoons or cubicles and passed the winter as larvæ pupating on April 20th, 1912. On September 19th sugar was tried on Deal sandhills on what should have been an ideal evening with a fair south-west wind, but the result left much to be desired. A most cosmopolitan crowd came to the sweets, which included red ants, a species of *Tipula*, wood-lice, earwigs, the large green grasshopper, frogs, large bodied spiders, hunting spiders, and I think all the most common moths to be taken during a season with the exception of *Xylophasia monoglypha* (*polyodon*). The following were the moths taken or seen:—*Noctua xanthographa*, worn and fresh, *N. c-nigrum*, *H. oleracea*, fresh, *Mamestra brassicae*, *Triphaena pronuba*, fresh, *P. meticulosa*, *Caradrina cubicularis*, *Anchocelis lunosa*, *Mellinia circellaris* (*ferruginea*), *L. pallens*, *Agrotis segetum*, *A. suffusa* (*ypsilon*), *A. puta*, *A. tragopogonis*, three *A. australis*, one worn, and two freshly emerged *C. vetusta*. On September 21st *Epunda lichenea* started emerging from

Ilfracombe pupæ and continued to do so till October 9th. On October 7th a specimen of *Dianthoecia cucubali* emerged from a South Devon pupa, the larva being obtained in August, so that this looks remarkably like a third brood. On October 26th, I met Mr. Tonge at Brockenhurst, where we were joined by Mr. Lyle. Sugar in Hollands Wood gave very poor results. Only a few *Agriopis aprilina*, *Scopelosoma satellitia*, *C. vaccinii*, *Miselia oxyacanthae* including two var. *capucina* came, not a single specimen of *Xylina socia* (*petrificata*) or *X. ornithopus* (*rhizolitha*) put in an appearance. The evening was very cold and ivy bloom was also a failure, only a few common *Noctuae*, three *Oporabia dilutata* and six *Cidaria siterata* (*psittacata*) were netted or fell into the beating tray. Two *Himera pennaria*, ♂s were netted and a ♀ *Ennomos erosaria* was discovered at rest on a stem of bracken and duly obliged with ova, which were bright green when first laid, afterwards turning to a dark olive-green. On the morning of the 27th, a visit was made to New Copse, but as soon as it was reached a heavy rain came on and we spent the morning under a Douglas pine, being eventually driven to seek shelter in an old shed. By the evening the rain had eased a little and we sugared in Hollands Wood. The rain, however, washed the sugar off, but in some cases where the trunks were sheltered *S. satellitia*, *C. vaccinii* and *M. oxyacanthæ* came in some numbers with one *C. exoleta*. On November 28th, another visit was paid to Brockenhurst, when I again had the pleasure of Mr. Lyle's company. We sugared in Hollands Wood, but only a few *S. satellitia* and *C. vaccinii* came. *Cheimatobia brumata* was exceedingly abundant swarming on every tree trunk. Only one *Hybernia defoliaria* (freshly emerged and crippled) and four *H. aurantiaria*, worn, were seen. I found *Gonepteryx rhamni* hibernating in ivy about 3 feet from the ground, and Mr. Lyle showed me another, also in ivy, about 30 feet from the ground. On November 29th six *Sarrothripa undulanus* (*revayana*) and three *C. siterata* (*psittacata*) were beaten out. On the evening of November 20th, we walked to Lady Cross but not a single Geometer was seen. Four freshly emerged *Poecilocampa populi* were taken on street lamps, and two *S. satellitia* were discovered feeding on broken hips of the Wild Rose. On December 1st I entered the train at Southampton for home, and on the cushion sat a perfectly fresh *Hybernia defoliaria*, which was soon made comfortable in a pillbox. This was my last capture for the year.

Nomenclature.

By Hy. J. TURNER, F.E.S.

In view of the forthcoming International Congress of Entomology, to be held at Oxford in the early part of August, it may not be inadvisable to make various suggestions, which might be borne in mind in the proposed consideration of the "vexed question," Nomenclature. The specialists who will meet there will no doubt look at the question more or less from their own prejudged position, induced by their constant contact with the intricacies and absurdities which are continually arising in their daily work. Possibly a few suggestions from a broader point of view may be of use in bringing in points

which appeal to the general worker, and to one outside, shall we say, the official circle.

At the present time it is practically a truism to state that authors bestow names at their own sweet will, without let or hindrance, and with no guide but their own prejudices, or even aberrant idiosyncrasies, with the result we often get small groups of letters, we cannot call them words, which convey no indication of the object they were intended to represent, and are so difficult to memorise that they are a grave detriment to the progress of science on account of the delays they cause in searching out their originally intended signification, if they had one. It is true there are codes of so-called rules, some intended to be of general application in all branches of Zoology, such as those issued by the International Zoological Congress, and others like the Merton Rules, compiled by Lord Walsingham and John Hartley Durrant, intended as a guide for Nomenclature to their own particular branch of Zoology, the Micro-Lepidoptera. All these rules are complicated, many of them made with the intention of altering, so-called correcting, rectifying, improving, names which have been thought to be wrongly constructed or even misapplied. Not a few of these rules it is difficult to interpret, and scarcely two independent workers translate them into practice in the same way; even when appeals are made to the existing Committee of the International Zoological Congress, the ignorance of the full significance of a rule is often apparent by an award obviously not in accord with some other rule, which partly covers the case. This was well shown in a recent appeal made in the Order Diptera. Individual workers use these rules or not, as they think fit, interpret them according to their own views, and appeals to authority are rarely made, while decisions are frequently not adhered to when given.

To us, as entomologists, it would seem advisable to have a separate Committee of Appeal composed of entomologists pure and simple, since the objects dealt with in the study of insects so vastly outnumber those in all other branches of Zoology, as a well-known worker, tersely put it the other day, "The part is greater than the whole." The present time seems most opportune. The International Congress of Entomology has now become an established body. All countries have given in their adherence to it, it is meeting in this country where the consideration of nomenclature has always been to the fore, and all our own great workers and specialists, as well as the foremost men from the continent and from America, are among the recognised delegates.

From what has occurred during the past few years in the long list of absurd, puerile, inappropriate, and in a few instances discreditable names which have been bestowed, it is quite apparent that there should exist a supreme Committee of Appeal, to whom any new names could be submitted if there were any doubt as to their impropriety, either from a structural (philological) defect, an offensive (social, moral, political, personal, etc.) signification, or from a synonymic point of view, etc. This should be the primary object of the appointment of this Committee, *viz.*, to deal with the Nomenclature of the future with a view to the simplification and reduction of the synonymy, and in no way to hamper or restrict the present methods of individual work. Workers will bestow names in the future, as they have done in the past, and in ninety-nine cases out of a hundred the names will be as

now, appropriate and inoffensive, and will become valid. It is the one odd name which gives the trouble and which we have to legislate for. The Committee must not act in the nature of restriction. At the present time it appears hardly advisable to give the Committe any instruction to deal with the names of the past in a wholesale way, although it seems that something should be done. Each case might be discussed on its merits for a time as it comes up, until this proposed Committee gets a recognised standing, when at a subsequent Congress its powers might be increased. At present it seems advisable to get the committee appointed and to limit the reference to it as stated above, that it should be simply a court of appeal. Its decisions will be given by entomologists to entomologists, and will carry more weight and receive more recognition than would the decisions of any outside body.

It should be competent for any one to lodge an appeal, but it must be on one or more definite points and the decision of the Committee must be absolute, even if a slight error in their collective judgment should creep in. What is wanted for the future is absolute finality as regards the application, structure, etc., of any one name. The Committee are not to consider all names, and a majority decision in case of dispute to be final. It would be advisable for the awards, when made, to be distributed to the chief magazines of each country, but it need not to be the duty of the committee to do or to see that this is done.

It might be referred to the Committee, if established, that they should consider the advisability of compiling a code of nomenclatorial rules for the general guidance and information of entomologists, and to report at the next Congress.

A general instruction as to the work of the Committee on any question might be indicated at the Congress. When an appeal is made it should be the duty of the Committee to ascertain all available facts and details, to confer with one another, to make various suggestions to both the appellant and the author, but only in extreme cases should it be the duty of the committee to alter or rename, and then only after all reasonable suggestions or alternatives had been ignored. In such extreme cases the decision should be sent to at least one of the chief magazines in each country by the committee. Of course all members of the Committee when a decision has been arrived at will agree loyally to support it, even against their own individual opinion.

It must be generally recognised that there are several inherent difficulties in the way of the working of this Committee besides the question of language. The members could only meet at the Congress once in three years, and communication, necessarily slow, must be by correspondence, and some plan would have to be devised for the working of this. Say a secretary, who would send on a duplicate of each appeal to one member, who would register his opinion and pass the appeal with his opinion to the next member, and so on. The order of the communications might be determined by arrangement. The secretary would then collate the opinions and summarise the result, which he would at once send to each member for his approval or further suggestion. In the mean time the secretary and each member of the Committee would ascertain all the facts bearing on the case, which would be incorporated with the secretary's summary. Finally, the secretary would communicate the decision both to the Appellant and to the Author concerned.

As to the composition of the Committee. There should be representatives of all the chief countries of the world, wherever Entomology is taken as a serious branch of study, and from whence delegates are elected to the Congress. Probably one representative from each would be sufficient, with the addition of a secretary who would voluntarily undertake the necessary correspondence. He must be a good linguist, or have opportunities of getting translations, etc., done for him with precision and accuracy. An endeavour should be made to get one or more of the chief workers of the world in each of the orders most generally studied, to be a member of the Committee. There should also be a strong representative or two among museum workers and editors of responsible journals.

Another difficulty arises, and a rather big and important one, that is, ways and means. There will be a certain amount of secretarial expenses. The cost to the individual members of the Committee will be merely an occasional letter, but the secretary will have a considerable amount, not only of postage, but of other expenses, such as typing or copying, and this will have to be met. Probably a small grant might be made from the funds of the Congress or the Secretary might be recognised as one of the Officers of the Congress and his expenses covered, as are those of other secretaries.

There is one other point which appeals strongly for a decision, and that is the limitation of any further research into Nomenclature. It has become a thoroughly established rule that no name given previously to Linné's 10th Edition of the *Systema Natura*, 1858, shall be accepted. Research has now been going on for many years and all the important faunistic papers and works since that date have been ransacked, or are in process of being examined, so that there only remains a number of less important contributions in obscure magazines to be consulted by some future entomological bookworm with a desire to become notorious as a nomenclatorial revolutionist. If some authoritative limitation could be made to further research, or at least to the terrible wholesale changes which are now just beginning to be made in some orders, a great drawback to scientific advance would be minimised.

This is really an appeal for simplicity. Let us build the house first and see how it suits, afterwards furnish it in a becoming way. Get the Committee appointed and limit the references to it to see how it works the simple duties put upon it. Then when found to be reliable, and when organised (a body so composed will want organising, and well organising) and recognised generally as a thoroughly responsible body, more duties can gradually be put upon it, and we shall possess a permanent organisation which all, except an odd crank or two, will recognise in whatever nomenclatorial work they may have in hand.

Moths on trunks of apple trees.

By ALFRED SICH, F.E.S.

A few years ago I used to visit very frequently one of those entomological paradises, a rather neglected garden. There wild flowers, commonly called weeds, used to flourish in all the odd corners and there the leaves of the apple, pear, whitethorn, and other trees, having served their normal functions and fallen to the earth, were allowed to remain undisturbed through the winter and spring. This

was of course an arrangement most suitable to those lovely little creatures, the Lithocolletids, for they could lie cosily all the winter, and when in the spring, they had left their cocoons and expanded their wings, they could fly on to the tree trunks and rest in comfort. The first of these to appear in spring was *Lithocolletis concomitella*, Bankes, which I have sometimes found as early as the middle of April. Following hard on this boldly marked species, would come the more evenly coloured *L. corylifoliella*. This latter is rather an omnivorous feeder. It mines in hawthorn, apple, pear, and I believe in cherry. This year I have bred it from quince, from mines taken last autumn.

When May set in the apple trunks became quite interesting. Sometimes moths would rest on the stems of the pear trees, but for some reason they greatly preferred the smoother apple bark. Under ordinary conditions the north and east sides of the trunks were the more favoured. Lithocolletids are usually quiet enough to allow one to examine them with a lense and leave them in peace, if not required. The same may be said of that harbinger of Spring, *Swammerdammia pyrella*. By the way one has to remember the virtues of the great Dutch naturalist before reconciling such a name with this agreeable little insect. On the other hand, the two *Tortrices*, which haunted these trees at the same time of year were very wide awake. If the weather was at all warm, they had to be boxed on sight or lost. I think *Coccyx argyrana* was the most active, but *Pyrodes rheediella* was also very quickly on the wing. There must be some special penetrating rays or refractions of light which proceed from the human eye, for I have often noticed that one may be aware of a moth at rest on the bark of a tree, where it will remain still till one directs the sight on it to determine the species, it then becomes restless, and if one of the active species it will sometimes fly off at once. The destructive *Carpocapsa pomonella* is usually quickly out of the way, as if it knew it was not welcome. About the middle of May *Ornix guttea* would appear, but never in any numbers. Soon after this the glorious burst of spring would be over, and even the larvæ of *Eupithecia rectangulata*, which had been feeding in the apple blossoms, would all be spun up. There would still be a few worn specimens of Lithocolletids on the trunks, and occasionally, half hidden in a cranny of the bark, a specimen of the ubiquitous, white-headed *Endrosis lacteella*. During this lull the apple trunks were hardly worth searching. One might intercept a larva of *Recurvaria nanella* on its way down the trunk to find a convenient niche in which to spin its cocoon. Towards midsummer *Argyresthia cornella* with its head against the bark and its tail in air, would gladden the eye, and one was tempted to awaken it, in order to witness how carefully it laid its head again on the bark after balancing its body on its legs like a see-saw. As the most beautiful month of the year gave way to July, these tree trunks became again very attractive to the Tineist. *Bryotropha domestica*, bred on the neighbouring mossy walls, and wandering thence in search of honied blossoms, would take up a day's lodging on the bark, and *Recurvaria nanella*, escaping from its cocoon, would rest there after its strenuous efforts to free itself from its pupal shell. The Gelechias, to which tribe these two last mentioned belong, I look on as the most acute of the Tineids. *Gelechia rhombella* is certainly not the least gifted in cleverness. I have,

no doubt, passed this species over many times, and but for the black quadrate mark at the base of each forewing, I should have missed seeing it on many more occasions. One of its favourite resting places is just where a flake of bark is partly separated from the surface. Under this flake the moth will push its wings and body, just leaving its head and shoulders visible. But probably all unknown to the insect itself, the black basal marks betray its presence to the practised eye. When alarmed it sometimes attempted to withdraw further into its retreat. At other times it would make a rapid run of a quarter of an inch and take wing like a miniature aeroplane, except that all was done in perfect silence. When July was well advanced, *Blastodacna atra*, Hw. (*vinolentella*, H.S.), might sometimes be seen as a dark object on the stems of the apples. *B. hellerella* occurred earlier in the year on hawthorn stems, close by. In August I never found very much on these stems except the Hemipteron, *Phytocoris tiliae*, then in the perfect state. I have my suspicions that this insect may sometimes make a meal off a moth, if it happens to capture one at rest. Among the moths noticed, there were a few common Geometers and one or two Noctuae, such as might be seen in any suburban garden, but they were not in sufficient abundance to warrant any notes on their habits. Perhaps the only exception was *Eupithecia rectangulata* var. *nigrosericeata*. I noticed that this moth usually preferred to rest, not on the tree trunk, but on the lower surface of one of the horizontal branches, where it was very well hidden.

Notes on the Various Species of the Genus Coleophora.

By Hy. J. TURNER, F.E.S.

During the years 1904-5-6-7 I paid considerable attention to the genus *Coleophora* and made a large number of observations on the larval habits, etc. Notes on some of the species were from time to time contributed to the pages of this magazine, but for some reason or another they were discontinued. I now propose to put my notes in order and publish them as opportunity offers. Of the ova I have detailed notes in nine species, and as they were photographed most successfully by my friend Mr. F. Noad-Clark, plates can be given as well as descriptions. Mr. Sich will no doubt add any notes of his own on the species I have observed. The observations thus collected will be at the service of some monographer of the future, who may wish to add to the volumes of Tutt's *British Lepidoptera* series.

COLEOPHORA THERINELLA.

For my first introduction to the larvæ and cases of this species I am indebted to the kindness of Mr. Eustace Bankes, They were obtained near Dartmouth and were feeding on the common thistle, *Carduus arvensis*. They reached me on September 23rd, 1904. The cases were long and thin, cylindrical in shape, tapering somewhat, but very gradually, towards the anal extremity. Normally the cases are three valved at the anal end, but most of them at the time they reached me were very indefinite in the valve structure. Apparently they had only just been enlarged, as the extremity was very thin and scarcely lined with the internal layer of closely woven silk, which forms a strengthening and definitely edges

the valves. The cases being clean and white would support the contention that they were not fully complete, as in this species I have found the white colour rapidly becomes a dirty brown. On these cases it was interesting to note the vestigial remains of the earlier stage of case-growth. On each side of the "mouth" end somewhat behind the "neck" of the case were the two halves of this early case, very small, but very distinct, noticeable by their dirty brown colour contrasting with the clean white of the new material. The earlier case had apparently been split down the ventral side, and partly down the back, the two "wings" as it were being incorporated in the new tube, which the larva had made, and subsequently new rings of tube-wall substance added in front to form a suitable mouth-opening for the case. In an older weathered case one does not easily recognise this early remnant. This sized case was apparently that in which the larva was to pass its last stage, and in which it was to pupate. The mouth opening turns down considerably so that the normal position of the case is 20° or less to the plain of attachment when the larva is at rest. The "neck" of the case has a more graceful curve than in many species and the margin of the mouth opening is turned outwards. As the neck is longer than in most species, the case appears to be at a greater angle to the plain of attachment more than it really is. Although the food plant of this species is abundant everywhere the insects are extremely local, but when found one can, as a rule, depend upon finding a considerable number. The larvæ feed on the undersides of the leaves, and since these are very thick one does not easily see the blotches they make unless one searches on hands and knees and braves the stout defensive weapons of the plant.

The following is a description of a larva, taken on September 29th, 1904, when it was presumably in its final instar.

"The head, brown not black, very shiny, much more so than the plate on the first thoracic segment.

First thoracic segment, with a large dorsal plate, very dark in colour, almost black, with a very fine suture up the middle, which gradually becomes finer, almost vanishing at the front margin of the plate.

The second thoracic segment has four small plates arranged in an almost straight line transversely to the body of the larva, the front margins of the four forming a very slight curve, concave towards the first segment. These four plates are, to speak very roughly, of a general right-angled triangle shape, the two centre plates with their right-angles approximating towards the rear, and each with one acute angle at the front margin, while the two outer ones have their right-angle nearest the sides of the segment in front, hence most of the front margin of the plates is formed by these two. The central suture is somewhat apparent, while the two oblique sutures, flanked by the approximating hypotenuses of the two triangles are scarcely observable when the larva is at rest, but become easily visible when the larva is active and the segments are extended in movement.

The third thoracic segment has two small elliptical plates lying at right angles to the longitudinal line of the body, and in line with the side-margins and rear angle of the outer triangular plates of the second segment, consequently they are very wide apart, and lie about midway between the fore and aft margins of the larval segment.

The anal segment has a large black plate covering the whole of the dorsum, and the anal claspers have each a small round black plate at the base of the outside towards the rear, separated above from the anal dorsal plate by a narrow suture.

The sides of the three thoracic segments are furnished each with a side plate, uniformly round and approximately of the same size, except that, if anything that on segment two is the largest.

There are four pairs of abdominal claspers, comparatively well developed.

The thoracic legs are furnished with a black plate quite at the base of the front, so much so that it is only apparent when the larva is in active movement. The first pair of legs are black tipped, and each leg is protected by a very small black plate on its outer, more exposed surface. These plates do not exactly cover the legs but leave lighter inter-joint spaces.

On the underside towards the back of thoracic segment three, there are two longitudinal black plates separated in the middle by a space somewhat less than the length of one of the plates.

The general coloration of the body of the larva is light clay-brown without a trace of yellow, very uniform, except in the thoracic inter-segmental spaces where it is still paler."

The case is cylindrical, but not of uniform diameter. The largest diameter is about one-third of the distance from the mouth end, from which the taper is very gradual near the anal end, where there is a slight constriction just before the valve pieces project out at their closely adpressed edges. There is a very slightly raised sutural ridge along the ventral side of the case, not always apparent. All the sutures of the three valved anal opening are strongly marked when fully completed, bowing outwards and turning round abruptly towards a very blunt apex, the meeting place of the termination of the three sutural ridges. The surfaces of all the three valves are very concave. On the inside the silken lining is very dark, probably stained by a larval secretion, as the case is clear white during construction and for a short time after it has been completed.

The slightly turned-out edge of the mouth opening is margined with a very fine, very dark line, more intense than the colour of the lining of the interior of the case. The outer surface of the case becomes a very dirty whitish-brown or actually a dingy earthy colour. Close observation shows numerous more or less obscure longitudinal parallel ridges from head to tail, more distinct on the underside, converging towards the ends, and, of course, more rapidly to the head than to the tail, as the major diameter is nearer the head. These are not apparent at all on the back. Presumably these are the lines of cleavage and insertion of new material at the different periods of enlargement of the case.

I have had no chance of observing the young larval case of this species, but judging from the remains noted on numbers of cases, it would appear that the primary case of the larva of this species has only a two valved anal aperture.

Since the imagines of this species fly in July and August, and the larvæ are practically fullfed by mid-September, it does not seem probable that the larvæ of one year are the offspring of the imagines of the same year. This view is supported by the evidence of the remains of the primary (?) larval cases in a very weatherworn condi-

tion, when the full-sized case is quite fresh. Hence, it seems apparent that the species is a biennial one, the larvæ going over two winters before the imagines emerge. There are thus two races attaining, in normal conditions of climate, the imaginal stage in alternate years.

On the following day, after making the above notes, *i.e.*, on September 28th, I examined other larvæ, taking them from their cases. The first one examined had been out of its case for some days when it was described. I found all these others examined were lighter in ground colour, their head and jaws were darker, almost as dark as the plate on the dorsum of the first thoracic segment, the two outside plates on the second segment were better separated from the other two by themselves, and the intersegmental membrane was not so distinct from the ground-colour as in the first one examined. The suggestion is that the first larva examined had darkened from the exposure of several days' duration, and had contracted in size owing to want of food and evaporation from being not protected by the impervious nature of the material of the case.

Comparison of the various cases at this date showed a few to be more slender, of less diameter, to have a strong ventral ridge, or keel, lighter than the rest of the tube, to be uniformly curved from front to back, and with the anal opening very indefinite and ill-constructed, but apparently only two valved. Possibly these were cases made by younger larvæ, or by larvæ which had been parasitized or in some way unable to construct a normal case. It was subsequently found that the larva of all these last cases died sooner or later without further completing their dwellings.

On October 2nd, 1904, I found three cases of this species, one of which was an apparently unfinished case, slender and tapering to the indefinite anal extremity. One of the normal full-sized cases showed three dark longitudinal lines on the ventral side, extending from near the mouth opening to near the valves of the anal end. One line was quite central, the others equidistant on each side, a rather curious arrangement, as apparently one suture had been reopened, and served as the suture for the second inserted portion. All three cases showed the remains of the young-time case, *i.e.*, the two halves near the neck of the more mature case.

The blotches caused by these larvæ on the undersides of the thistle leaves were very numerous, nearly circular, and of small diameter. The larva only protrudes its head and thorax into the mine for a short distance around the hole. In this instance, the leaves of the thistle being luxuriant and very fleshy, and the mines being very numerous, it was easy to see the indications of the presence of larvæ without much trouble. Probably the reason that only three larvæ were found, although the traces of them were most apparent, was that the date was late in the year, and most had retired into winter quarters, the younger ones to await the spring growth to give renewed life and energies, the older ones to await the time for pupation in late spring or early summer.

All these larvæ were placed on living plants out-of-doors, but only two or three imagines appeared in the July of 1905. The plants died and the cases were eaten by various predatory beasts, which had inadvertently been enclosed in the cage with the earth and the growing plants.

A case received from Mr. Sich, and taken at Chiswick, was opened on June 18th, 1904, and found to contain a pupa. Unfortunately it was damaged in the process.

At the present time, June 28th, I have a few cases of this species given me by Mr. R. A. R. Priske, who found them a week or so ago near the shore at Sidmouth, S. Dorset, on bramble and Hemp Agrimony, but he saw no thistles near. The Hemp Agrimony had been well blotched, apparently by many larvæ, but he was only able to find seven cases. The bramble had only served as a perch either for pupation or for ecdysis.

COLEOPHORA NIGRICELLA (?) (A FURTHER NOTE).

On May 8th, 1904, at Catford, I met with a case on hawthorn with which I was unacquainted. It was a small, straight, delicate case, clean brown in colour, with a mouth so oblique as to bring the case almost prone on the leaf. The anal end had three valves, and there was a keel on the lower side of the case moderately well developed at the anal end. The larva fastened up its case on May 10th, probably for change of skin, as on May 14th it was feeding again, and fed on slowly till May 30th, but did not enlarge its case, and as no imago emerged I was unable to identify the species. I did not think it was an aberrant case of *C. nigricella*, from the great obliquity of the mouth, the smooth texture, the light colour, and the general form and shape.

From a case found in May, 1906, among a number of *C. nigricella* of older growth, I am inclined to think that the above was only a case of that species, probably a belated young case, the first possibly after the winter curved case, with the mouth-opening much more oblique than normally.

Longitarsus plantago-maritimus, sp. nov. A Coleopteron new to Science.

By HEREWARD C. DOLLMAN, F.E.S.

TYPE SPECIMEN :— Oblong-ovate, strongly convex, deep black, shining; antennæ long, thickened towards apex, penultimate joints fully twice as long as broad, black, with the basal joints (1-5) deep red-brown; thorax moderately shining, entirely deep-black, punctured closely with a coarse and somewhat confluent punctuation; winged; elytra at bases wider than thorax, plainly widened behind, convex, deep-black, the humeral callosity well developed and very shining, very strongly, coarsely and closely punctured; pygidium exposed, deeply punctured; legs deep brown; femora nearly black (posterior femora quite black), anterior and intermediate knees, and all the tarsi red-brown. Length, 2½ mm.

The Type specimen taken at Gravesend on *Plantago maritima*, May 5th, 1912.

This species is most closely allied to *L. niger*, Koch, but is abundantly distinct therefrom. I have taken considerable trouble to satisfy myself that it was not Koch's species, referring to the original description (*Ent.* Heft. II., p. 57, 1803), to the full account and key of Weise in *Insecten Deutschlands*, vi., p. 939 (1893), and other works, besides having at my disposal continental exponents of *L. niger*, Koch, which latter fully agree with the various descriptions of the species.

The most easily observed differentia are its considerably larger size, and the much darker coloration of the legs (those of *L. niger* being, with the exception of the femora, light testaceous-red).

But by far the best character is found in the thoracic punctuation. In *L. plantago-maritimus* the punctuation is coarse, confluent and close, in *L. niger*, shallow, isolated and diffuse. This gives to *niger* a a much more shining thorax, most easily seen if both species are examined side by side under a low objective. The shallow, isolated nature of the punctuation of the thorax in *niger* is mentioned by Weise and other authors. The *L. niger* of Redtenbacher is considered by both Foudras and Weise as a synonym of Koch's species.

Subsequent expeditions to Gravesend resulted in the accumulation of more material to work upon, a nice series of the beetle being taken off the leaves of sea-plantain. The majority of these were quite dark like the first specimen, but some were pitchy-brown and others testaceous-red. The coloration of the legs and the basal joints of the antennæ in these latter specimens was in harmony with their general pigmentation, in the pitchy specimens being pitchy (a little lighter than the type-form), and in the light ones, testaceous-red, with the exception of the posterior femora, which in all my specimens are black, or nearly so.

For this extreme light form I propose the name of *perplexus*, ab. nov.

Similar to normal specimens of *plantago-maritimus* in size and sculpture, but with the thorax and elytra (except the sutural margin) testaceous-red; antennæ with the first six joints, and the base of the seventh, clear light red-brown; anterior and intermediate legs entirely testaceous-red, posterior legs with the femora black, tibiæ dark brown, and tarsi testaceous.

The "var a" of *L. niger*, Koch, mentioned by Weise, would seem to show a parallel case of colour variation in that species.

I may say that all my specimens were taken off *Plantago maritima*, to which plant the species is undoubtedly attached. Being a very active *Longitarsus*, it is not a matter for surprise that perhaps as many examples were missed as secured.

In conclusion I am glad to have the opportunity to thank Mr. H. St. J. K. Donisthorpe for having very kindly translated for me the German descriptions of Koch and Weise.

NOTES ON COLLECTING, Etc.

Types of Lepidoptera.—In a note to the *Entomologist* in May, 1911, p. 185, Mr. R. Adkin queries why so little interest was manifested by the numerous gentlemen assembled at Steven's Sale Rooms when the main portion of the *Noctuae* contained in the "Tutt" collection, and upon which the book *British Noctuae and their Varieties* was based, were sold. In the June number of the same magazine Mr. G. T. Porritt answers this query with the statement that except some half-a-dozen British lepidopterists, who are interested, no one uses such varietal names, as were attached to the various series, or cares anything about them. May I be allowed to suggest another reason? One sought in vain among Mr. Tutt's insects for the "type specimen" of a variety. The varietal names given by him were given, not to a single specimen, but to a set or series characteristic of a certain geographical area, and to that set were his labels put; he did not, as a rule, pick out an individual and bestow a name upon it, and it alone. He saw the general facies in a set of specimens from one or more localities as distinct from a set from other localities where the species occurred, and distinguished each set by a distinctive name.

Turn to any page of his work on the group, and this fact can be verified. If there had been "type specimens" with the label attached to the specimen giving the information that it was *the* specimen, the whole practically of the unique collection of series of *Agrotis tritici* would not have been sold for some 18s. Was it not a fact that in the sale room, and during the previous view, collectors were asking "Which is the type?" of this or that form and "Why is not the type marked?" "We cannot tell which is the type." There are entomologists and entomologists. The man who recognises that a thing of beauty is a joy for ever puts a money value on precision, the man who goes deeper than the recognition of beauty and the feeling of joy at the superficial perception of beauty knows intuitively that precision in similarity is a myth, and acts accordingly, with the result that the value of his work in £ s. d. is often ruefully incommensurable with its deserts, and we wonder why.—Hy. J. Turner.

Occurrence of Triogma trisulcata, Schumm.—In 1893-4-5 a dozen specimens of a Tipulid were taken by me in Sutton Park, Warwickshire, and were then placed in my collection under *Phalacrocera replicata*. A specimen was sent to the Rev. E. N. Bloomfield and remained in his possession some years, when it was forwarded to Mr. Carter, of Blairgowrie, with other insects. Mr. Carter found it did not agree with *P. replicata*, and brought it forward (*Ent. Mo. Mag.*, April, 1912) as a species and genus new to Britain. Mr. Bloomfield then communicated with me, and as there appeared to be some doubt in the matter, I forwarded a specimen to Mr. J. E. Collin, who compared it with continental types (Kowarz's Coll.) in his possession, and confirms it as *Triogma trisulcata*. It is well represented in my collection by seven ♂s and three ♀s.—R. C. Bradley, 26, Alcester Road, Moseley, Birmingham.

Spring Notes.—I have been out to-day in the neighbourhood of Farningham, and have never seen so many *Euchloë cardamines* before in my life, and a week ago *Celastrina argiolus* males were everywhere in the same locality. To-day I searched for the females, but could not find one. *Callophrys rubi* was fairly plentiful, and the first brood of *Polyommatus icarus* was well out and abundant. I hear that *Brenthis selene* has already been taken in Surrey this year.—H. Moore (F.E.S.), 12, Lower Road, Rotherhithe. *May 19th.*

Phryxus livornica at Coventry.—I beg to record the capture of a specimen of *P. livornica* at light last evening. I was passing near an electric arc standard by St. John's Church, when I noticed a hawk-moth circling around it. I had no kind of a net with me,but after-soaring around for a time, it came within reach, and I struck it down with my umbrella. I was much surprised to find that I had secured a specimen of *P. livornica*, minus an antenna, but otherwise in fair condition.—E. H. Sills, 34, Earl Street, Coventry. *May 18th*, 1912.

Phryxus livornica at Cromer.—On May 22nd a nice specimen of *P. livornica* was taken at rest on a shop window in this town. It is the first I have heard of from this locality, and is now in my possession. I see in *The Field* that another specimen has lately been taken near Flax Bourton. I have seen several specimens of *Pyrameis cardui* about lately in this district.—F. H. Barclay (F.G.S., F.E.S.), The Warren, Cromer.

Larvæ of Coleophora discordella.—When at Folkestone I found,

on June 8th, a colony of *Coleophora discordella*, feeding on a plant of *Lotus corniculatus*, growing on the cliff opposite the sea. Many larvæ of this genus prefer to feed on the lower leaves where they can remain hidden, but these larvæ by preference attacked the upper leaves of the shoots, mining them out completely, so that the plant assumed a variegated aspect. Most of the larvæ fastened their cases on to the stems of the *Lotus* for pupation, though some of them spun up on neighbouring grass bents, but all those I found spun up had previously crept down to the lower parts of the plant.—ALFRED SICH (F.E.S.), Chiswick. *July 2nd*, 1912.

WHITE OVUM OF DICRANURA VINULA.—On June 26th, my brother, H. Leonard Sich, found an almost pure white egg of this species, which had been laid on a leaf of aspen, at East Hoathly, in Sussex. He sent it to me, and the larva hatched on June 30th. It is quite black with red filaments, and appears therefore perfectly normal in coloration. The egg, compared with white paper, has a slight creamy tint and is brownish below the periphery. I have often found the eggs of this species of a pale buff colour but have never before seen a white specimen.—ID.

NOTES ON LYCÆNA SEPHYRUS VAR. UHRYKI, REBEL.—Dr. H. Rebel recently described a new local race of *Lycaena sephyrus*, Friv., under the name of *uhryki*.* At the time of the description only a few specimens of this form were known, taken with one exception near Flamunda in the Deliblat, a large sandy plain in Temes Comitat in the extreme South of Hungary. The single other specimen was secured last year near Buza in Transylvania.† The older Hungarian collectors had already recorded true *sephyrus* from Transylvania, but the record was looked upon as doubtful. Shortly after Dr. Rebel's publication a specimen was brought to him stated to have been caught many years ago in the mountains round Ofen (Budapest).

This year my sister-in-law, Miss Charlotte de Wertheimstein, took me to Flamunda to see this interesting species in its native haunts, and I had the pleasure of observing quite a number of specimens of this fine insect. The butterflies only occur where the rare and beautiful Eastern plant *Astragalus dasyanthus*, Ev., occurs, and the females fly round this plant and sit upon it. Unfortunately, owing to the very short time at our disposal, and the bad weather, we did not observe the actual act of depositing the ovum, but there is no doubt that this plant is the food of the larva in the Deliblat, and as it also occurs, though rarely, in Transylvania, the butterfly doubtless deposits on this plant there, too. *Astragalus exscapus*, L., the food plant in Switzerland, is also found in Hungary, and probably the food of the larva of this insect in Western and Central Hungary, such as in the Ofen Mountains, is this plant.—(Hon.) N. CHARLES ROTHSCHILD (F.Z.S., F.E.S.), Arundel House, Kensington Palace Gardens, W. *July 2nd.*

AN EASY METHOD OF GETTING FULL FED COSSUS LIGNIPERDA LARVÆ FROM THE TRUNKS OF INFECTED TREES.—In the Autumn full fed larvæ of the above species may often be seen near the entrance of their burrows in an old tree preparatory to starting their wandering in search of a suitable place to spin their cocoon in which to pass the Winter. If a piece of tough grass is bent in two, and the bent part presented

* *Ent Zeit.*, xxv., p. 191 (1911).

† *Verh. u. Mitt. Siebenburg Ver Naturwiss.*, vol. lxii., p. 6 (1912).

to the larvæ, it will seize it with its mandibles, hold on, and allow itself to be drawn gently out like a cork from a bottle. All other devices I have tried only serve to send the larvæ farther into their burrows.—C. W. COLTHRUP, 141, East Dulwich Grove. *June 17th.*

NOTES IN LATE MAY OR EARLY JUNE:—When crossing a wood-clearing at Hadleigh on the morning of May 19th *Nomophila noctuella* flew from an oak trunk. One does not associate this species with tree-trunks and it is certainly unusual to find it in a wood. I was at Chattenden on May 26th and found *Conchylis maculosana* plentiful and in good condition. I also found *Acrolitha* (*Hedya*) *servillana*, and on bloom of *Veronica chamaedrys* several examples of *Adela fibulella*. On May 20th I visited Cuxton and obtained *Acidalia ornata*, *Eupithecia exiguata*, and *Agriades thetis* (only one male, fine), *Nisoniades tages* in plenty, *Euclidia glyphica*, *Ennychia* (*Pyrausta*) *nigrata* (*anguinalis*), *P. ostrinalis* and *Gelechia artemisiella*. At Malling, on June 1st, flying in the afternoon along a wood path on the top of the down, were *Lampronia luzella*, *Scardia* (*Tinea*) *arcella* and *S. parasitella*. Lower down I found *Botys pandalis* and *Oxyptilus parvidactyla*.—F. G. WHITTLE, 7, Marine Avenue, Southend. *June 5th.*

HYLECOETUS DERMESTOIDES, L., FROM LOCH LOMOND.—I recently spent a day at Ardlui at the head of Loch Lomond, my chief object being the ascent of Ben Vorlich. This satisfactorily accomplished, and the evening being beautifully fine, a friend rowed me to a small wood of Scotch fir on the other side of the loch, where I spent some time searching for *Tullbergia* (*Collembola*) *scolopendrella* and other small fry. Just before returning to the Hotel for dinner I noticed a log of Scotch fir riddled by a beetle, *Hylecoetus dermestoides*, many of which were just emerging. I took sixteen specimens ranging from 7mm. to 13·5mm. in length, five of these were females ranging from 10mm. to 12·5mm., and the rest males ranging from 7mm. to 13·5mm. The males are referable to two named varieties, *marci*, L., and *morio*, F., and as such should be recognised in our British Catalogue. The var. *marci*, L., is the form with brown or ferruginous elytra, tipped with black, of which I took two examples measuring 7mm. and 11·5mm. respectively, whilst the var. *morio*, F., has the head, thorax and elytra entirely black, my examples ranging from 8mm. to 13·5mm. My friend Prof. T. Hudson Beare visited the spot a few days later, finding the beetle, but only in the one log.—RICHARD S. BAGNALL, (F.E.S.), Penshaw. *June 4th*, 1912.

EASTBOURNE NOTES.—The weather is not very grand here and little doing entomologically. Sugar has attracted plenty of common moths and a few *Aplecta prasina* (*herbida*). I have just found two larvæ of *Pyrameis atalanta*. If the wind drops I hope to meet with more, as things seem quite forward. I have found no *Agriopis aprilina* larvæ and those of *Psilura monacha* are nearly fullfed, but scarce. *Brenthis selene* is still flying, and on Beachy Head *Agriades thetis* (*adonis*) is out.—HUGH MAIN (B.Sc., F.E.S.). *June 20th*, 1912.

SCIENTIFIC NOTES AND OBSERVATIONS.

PUPATION OF BRENTHIS EUPHROSYNE.—About 3 o'clock in the afternoon on April 24th, I came across a larva of *Brenthis euphrosyne* suspended from a small silken pad spun on the slightly inclined side of a rock, placed with others, bordering some stone steps in my

garden. Not more than a quarter of an hour later I again looked for the larva to make sure I had correctly determined the species and, to my surprise, found that it had almost completed the process of pupation, with the exception of finally attaching its cremaster to the silken pad. By a series of efforts, in which the pupa hunched itself up and then extended its still soft and pliant body towards the pad, it mounted upwards and, of course, tail-foremost over its lately doffed larval skin which was all bunched up and, in some manner, held firmly close under the silken pad. At each of these efforts, four or five in number, I noticed that the anal claspers (still clearly discernable) opened and closed as the body stretched out and curved in the direction of the pad, towards which the pupa gradually progressed. How it managed to hold on during this operation I failed to observe. On reaching its goal, the anal claspers opened and closed for the last time and gripped hold of the cone-shaped pad and then the pupa started a wriggling motion from side to side and in this way firmly attached itself to the silk. This side-to-side movement was continued until the discarded larval skin was dislodged and had fallen to the ground. The pupa was slightly malformed, one wing-case being rather undersized, and, as I expected, the imago which emerged on May 26th had small misshapen wings on one side. This species has been on the wing in the Wye Valley district since May 9th.—J. F. Bird, Sylvan View, Brockwell, nr. Chepstow. *June 10th*, 1912.

CURRENT NOTES AND SHORT NOTICES.

The late Mr. J. W. Tutt, having directed his Executors to complete the partly published volume of *British Butterflies* so far as the MSS. extended, the Executors wish to record their indebtedness to the Rev. Geo. Wheeler, M.A., F.Z.S., F.E.S. (author of "Butterflies of Switzerland and the Alps of Central Europe"), who has most kindly consented to arrange these in conformity with the rest of the volume and to see them through the press. Part xi. has now been issued consisting of three plates, the completion of the section devoted to *Polyommatus icarus* and a portion of the synonymy of *Aricia medon* (*astrarche*). The succeeding parts will be issued from time to time as the MSS. are prepared for printing.

The *Canadian Entomologist* for May contains a very useful up-to-date map, illustrating the Faunal Zones of North America. This is particularly useful at the present time to those who are actively engaged in collecting and collating the material for the "Catalogue of the Insects of Canada and Newfoundland," to which reference was made in these pages some months ago.

In an article in Fascicule 10 of the *Bull. Soc. Ent. de France*, M. F. le Cerf endeavours to clear up the confusion hitherto existing between the different local races of *Epinephele jurtina* and *E. telmessia*, basing his results largely upon an investigation of the genitalia. He recognises the following local forms: *E. jurtina*; *E. jurtina* var. *fortunata* (Algeria); *E. jurtina* var. *persica* (Persia); *E. jurtina* gen. æs. *hispulla* (S. Europe); *E. telmessia*; *E. telmessia* var. *oreas* (Persia); *E. telmessia* var. *kurdistana* (Kurdistan); and *E. telmessia* var. *manioloides* (Persia); he gives six diagrams in illustration of his remarks.

We have received the *Forty-Second Annual Report of the Entomological Society of Ontario*, 1911. The Report is mainly an account of

the Annual Meeting which this year took place at Guelph, in the Ontario Agricultural College. Reports from the various local branches and numerous papers read or contributed are given at length, occupying some 114 large pages with many illustrations, some of which we fancy we have seen more than once before. Among the papers are "Insect Scourges of Mankind," by Dr. Hewitt; "Injurious Insects of the Year," by J. M. Swaine; "The Blister Beetles," with a plate by Arthur Gibson; "Insect Migration at Aweme, in Manitoba," by N. Criddle; etc. An account of the proposals for the Catalogue of Canadian Insects is also given, and the report of the subsequent discussion which took place at the meeting is included.

Three years have elapsed since the publication of the first volume of the *Transactions of the Carlisle Natural History Society*. The hearty support accorded to vol. i. encourages the Society to continue publication, and vol. ii., is now in the press. This volume will contain the continuation of several papers commenced in vol. i., and additional ones on subjects relative to the Natural History of the Lake District and Cumberland. The contents of vol. ii. will include "The Arachnidæ (Spiders, &c.) of Cumberland," by H. Britten, F.E.S.; "The Lepidoptera of Cumberland, Pt. II., Moths," by Geo. B. Routledge, F.E.S., and "The Coleoptera of Cumberland, Part II.," by F. H. Day, F.E.S., and five memoirs in other branches of Natural History.

In the March number of the *Ent. Mo. Mag.* Mr. Eustace R. Bankes established *Coleophora trigeminella* as a Lepidopteron new to Britain, on five examples bred by Mr. Alfred Sich from larvæ found on hawthorn at Brentford and Putney. At the same time the claims of the three supposed species, which are known as *C. badiipennella* are discussed at considerable length, *viz.*, *C. badiipennella* of Duponchel; *C. badiipennella* of Zeller (*Lin. Ent.*, iv., 401-403), of H.-S. (680, v., p. 285), and of Frey (*Tin. Pter. Schweiz*, 225); and *C. badiipennella* of Stainton (*In. Brit. Lep. Tin.*, 224).

We are pleased to know that the misunderstandings which have so long existed to prevent the obtaining of Seitz *Macro-Lepidoptera of the World* through the ordinary channels in this country have been at last settled. The parts so far published in English are now obtainable. The following volumes are rapidly approaching completion, *viz.*:—*Palaearctic Bombyces* and *Sphingids*, *Palaearctic Noctuiformes*, *Indo-Australian Rhopalocera* and *American Rhopalocera*, while the following volumes are also in progress, *viz.*:—*Palaearctic Geometrae*, *Indo-Australian Bombyces* and *Sphinges*, *Indo-Australian Noctuiformes* and *African Rhopalocera*. One of the occasional contributors to our pages, Mr. L. B. Prout, is the author responsible for the four volumes in which the *Geometrae* will be dealt with.

At the Annual Congress of the South Eastern Union of Scientific Societies held at Folkestone during the first week in June Mr. Alfred Sich, read the only entomological paper, one entitled "Lepidopterous Case-bearers." At the meeting of the Delegates on the last day of the Congress Messrs. A. E. Gibbs, E. Step and H. J. Turner were elected members of the Council. The next Congress will take place at Hampstead in 1913 at the invitation of the Hampstead Scientific Society.

In the *Entomological News* for March last is an interesting article entitled "At the *Ceanothus* in Virginia." It is a vivid account of the attractive powers of the *Ceanothus* plant and a list of all the species, so far identified, which come to the feast. One can judge of the

plant's power from the summary of species in which 42 Hemiptera, 58 Coleoptera, 165 Hymenoptera and 117 Diptera, a total of 382 species are recorded. In addition to this a number of species were not identified and a few Lepidoptera have been omitted. Truly a formidable number when one is told that the flowering period lasts but three weeks at the utmost.

In the *Ent. News* for April is a very interesting account of the hybernating habit of *Cicindela senilis* in California. Little piles of earth were noticed around the edges of large pieces of rock lying on the ground. One of these rocks was raised and numerous burrows were found, each containing a beetle at its inner extremity and blocked at its mouth by the removed earth. Under three such rocks as many as 64 specimens in all were obtained.

In the *Ent. Mo. Mag.* for March, Mr. E. A. Butler adds a new species of Hemiptera to the British List in the Capsid, *Psallus vitellinus*, of which six specimens were taken in a plantation at Colesbourne in July, 1911.

In the same number Mr. James Edwards records another addition to the British List, *viz.*, the Hemipteron, *Psylla albipes*, taken by Mr. W. West, at Box Hill.

The Hon. N. C. Rothschild, in the same number, recorded a new British Flea, *Palaeopsylla kohauti*, of which three specimens were taken from a mole captured in March, 1911, at Ballindalloch.

In the April number of the *Ent. Mo. Mag.* Mr. A. E. J. Carter announces a Dipteron new to Britain, *viz.*, *Triogma trisulcata*, taken in 1899 at Sutton Coldfield and only recently rightly identified.

Mr. Porrit, *Ent. Mo. Mag.* for April, names the very distinct local form of *Hybernia aurantiaria* from S.W. Yorkshire, as var. *fusca*. It is of a uniform fuscous-brown without trace of the usual markings, and has occurred regularly for some years past.

In the May number of the *Ent. Mo. Mag.*, Commander J. J. Walker announces *Claviger longicornis* as a Coleopteron new to Britain, taken in the Oxford district.

Mr. J. E. Collins describes, in the *Ent. Mo. Mag.* for May, three species of the Dipterous genus *Heteroneura* as new to science and to Britain, *viz.*, *H. caledonica*, from Nethy Bridge, *H. gentilis*, from Lyndhurst, etc., and *H. verticalis*, from Dolgelly, Nairn, Studland and Bridgend.

In the May number of the *Ent. Mo. Mag.* Mr. Norman H. Joy describes a new form of the Coleopteron *Microglossa marginalis* as var. *obscura*. It was obtained at Strathfieldsaye, Hants, in 1909.

To those interested in "Alternation of Generations" we would suggest a glance at the diagram given in the May number of the *Ent. News*, illustrating the life-cycle of the malaria parasite. The infection takes place through the biting of the human victim and the injection of the "sporozoite" with the salivary secretion of the mosquito. In the human blood this "sporozoite" develops into an active amœboid "schizont" which enters and feeds upon the blood corpuscles. These parasites multiply asexually and intensify the attack and its results on the human victim. Some of the parasites are subsequently sucked up by other mosquitoes while biting the malarial patient, and undergo their sexual generation in the blood of the insect, producing in turn fresh "sporozoites" which infect other victims.

In a recent number of the *Canadian Entomologist* a summary

is given of the results obtained by the experiments and observations of Dr. T. Goldberger and Dr. T. F. Anderson on the transmission of the virus of typhus fever by lice (*Pediculus vestimenti* and *P. capitis*). The details of this new discovery may be found in the Public Health Reports of the U.S. Marine Hospital Service, Washington. "One by one our most common insects affecting man have been shown to be important factors in the transmission of disease; the house fly carries typhoid and certain other infectious diseases; the flea carries the plague bacillus; the bed-bug has been shown to be the transmitting agent of the causative organisms of the serious tropical Black Fever, and the louse transmits typhus fever."

In the June number of the *Ent. Mo. Mag.* Dr. David Sharp describes a new species of Coleoptera of the genus *Oligota*, obtained from seaweed at Lymington, as *O. ytenensis*. It has also been obtained at Edinburgh.

In the same number Mr. E. A. Newberry recognises *Lathrobium ripicola* as a species of Coleoptera new to the British List. It has occurred at Tottenham, Woking, Putney, Carlisle, etc.

Dr. E. Bergroth describes a new British species of Tipulid in the June number of the *Ent. Mo. Mag.* as *Ephelia verralli* from specimens obtained in Warwickshire (Bradley) and Derbyshire (Verrall); and Mr. F. W. Edwards describes two further additions to the Diptera new to Britain, *viz.*, *Oligotrophus ventricolus*, a Cecidomyiid bred from galls found on *Molinia coerulea* near Oldham, and *Lestodiplosis tenuis*, another Cecidomyiid from Hertfordshire, from the Piffard collection.

In the *Naturalist* for March last Mr. C. Chas. Horrell records the occurrence of *Chaetocnema conducta*, a Coleopteron new to the British List. Two specimens were taken by him among herbage near Scarborough in May 1911

The *Thirty-Fifth Ann. Rep. and Proceed. of the Lancashire and Cheshire Entomological Society* has recently come to hand. This Society has among its members most of the well-known workers of the N.E. of England, together with a number of entomologists from more distant areas, who at some time or other have rendered their good services as an aid to the capital work and influence of the local Officers and Council. Mr. W. J. Lucas, B.A., F.E.S., one of the Vice-Presidents, contributed the Annual Address, taking as his subject, "The Early Stages of our Dragonflies." Mr. Geo. Arnold, M.Sc., read a paper on "Ants," in February; Mr. J. H. Watson read a paper in March, on "The Wild Silk-moths of the World," a subject which he has made particularly his own; Dr. P. F. Tinne read a paper on "The Application of Colour Photography to Entomology," in November, and a capital pocket-box exhibition meeting was held in October.

REVIEWS AND NOTICES OF BOOKS.

PROCEEDINGS OF THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY, 1911-12. With four Plates. Price 3s.—It was hardly to be expected that this Society could issue such a large volume as last year. The cost of the annual volume is a drain on the resources of a Society and it is only with the generous financial aid of some of the more enthusiastic members that the necessary record can be regularly published. For many years this Society has been fortunate

in having a long tale of such helpers, and the series of annual volumes for the past thirty years is a lasting testimony of the fact. In spite of the size of the volume being less, the plates not so numerous and less papers published, the present annual volume is by no means wanting in interest and usefulness. The year has been marked by one of the finest and largest pocket-box exhibitions ever held under the auspices of the Society. One hundred and three members and friends were present, of whom more than thirty-five brought exhibits. Another strong feature of the year was the special exhibition of *Rumicia phlaeas* and its allies held in December at the suggestion of the President, Mr. W. J. Kaye. The result was most satisfactory, a very fine and unique exhibition was arranged to which most of the well-known entomologists within reach of London contributed of their best. On other occasions most educative and comprehensive exhibits were made, *e.g.*, Geographical races and comparative series of *Melanargia galathea* by Mr. J. Platt Barrett, the unravelling of the tangle concerning the correct determination of *Luperina gueneei* by Mr. Hy. J. Turner, the comparison of the island forms of Rhopalocera from Corsica with British forms of the same species by Mr. A. E. Gibbs, the range of variation produced by *Pieris napi* during the year 1911, by Mr. T. H. L. Grosvenor, the hybrids produced by the crossings of *Nyssia* and *Biston* by Mr. R. Adkin, the breeding of *Aplecta nebulosa* from a Mendelian standpoint by Messrs. A. Harrison and H. Main, etc. The Annual Address, read by Mr. W. J. Kaye, deals in the first place with the influence which the remarkably high temperature and continuous sunshine during the year 1911 has had upon the abundance or otherwise of the Lepidoptera, and in the second place with the vexed subject "Mimicry," which he was able to illustrate very lucidly from his own experiences gained during his entomological trip to S. Brazil in 1910. A glance round the room at one of the ordinary meetings of the Entomological Society of London reveals to one that no small proportion of the Fellows present "matriculated" in the South London Entomological Society, a substantial and lasting testimony to the early training, and the permanent interest aroused in biological science by the associations induced under the auspices of this Society.—H.J.T.

LEPIDOPTORUM CATALOGUS: EDITED BY CHR. AURIVILLIUS AND H. WAGNER. W. JUNK, BERLIN, W.—If one may judge from the first six parts, which have so far appeared, this most comprehensive work bids fair to be of the utmost use to the systematist and student of the order Lepidoptera. It will take the place of all such valuable sectional works as *Kirby's Synonymic Catalogue of Rhopalocera*, *Staudinger and Rebel's Catalogue of the Palaearctic Region*, *Mengel's Catalogue of the Erycinidae*, etc., bringing everything up-to-date, and will mark a standpoint from which all future work must be commenced and constitute a volume which workers in every branch of Lepidopterology will have to consult for most of their references whether systemic or biological.

The Catalogue will contain the names, synonyms, varieties, the chief references, and the geographical distribution of all the species of Lepidoptera of the whole world, known up to the date of publication of the various sections. For each of the families the leading specialist is chosen, and each part embracing one family or group is a complete work in itself, with its own independent title page and index. Already six

sections have been published, of which that on the *Hepialidae* by H. Wagner and R. Pfitzner consists of 26 pages. To the genus *Hepialus*, of Fabricius there are no less than thirty-two references in the standard works of all countries as well as a large number of further references to the *Hepialidae* as a family. Turning to the well-known species *H. humuli* and its forms, we have more than a complete page of references, not only to standard works in many languages, but to many important biological contributions to magazine literature. In fact those who are acquainted with the exhaustive paragraphs of references at the head of each chapter in Tutt's *British Lepidoptera* will have some idea of the comprehensiveness with which each species has been here dealt with. Still dealing with *H. humuli*, we have "Biology: *Larv. Lep. Bomb.* 3, Tered. C.a,f.a-c, 1802.—Schwarz., *Raup. Kalend.*, 2, p. 7, 26, 106, 533, 701, 761; 1791.—Wallengr., *Scand. Het. Fjaril.*, p. 12, 1869.—Chapman, *Ent. Mo. Mag.*, 13, p. 63, 1876-77.—Gregson, *Naturalist Lond.*, 1, p. 78, 1865.—Brandt, *Ber. d. Vl. Ver. Russ. Naturf.*, Teil. 2, p. 70, 1880.—Packard, *N. Y. Ent. Soc.*, 3, t. 3u. 4, 1895.—Hofm., *Raup. Gr.-Schmett. Eur.*, p. 48, t. 14, f. 5, 1893.—Berge-Reb., *Schmetterl.*, p. 474, t. 52, f. 16a (Raupe), b (Puppe), 1910.—Peyron, *kgl. Svensk. Vet. Ak. Handl.*, 44, Nr. 1, p. 294, 1909." This is supplementary to all the ordinary references given to this species, and the whole should form the basis of the complete life-history from all points of view such as are demanded in modern lepidopterological work. Of course, a great deal of the usefulness of a work of this description depends upon the absolute correctness of the references. So far as we have investigated and tested we find them correct. The names of the various leading specialists responsible for these details should be a sufficient guarantee of reliance. The sections dealing with the so-called Micro-lepidoptera are dealt with in an equally thorough and exhaustive manner. Section 6, dealing with the *Adelidæ*, *Micropterygidæ*, and *Gracilariadæ* by E. Meyrick, is a proof of this. These families occupy 68 pages of the Catalogue, *Adela croesella* (*sulzella*) has nearly half a page of references, *Gracilaria phasianipennella* a third of a page, etc. An occasional idiosyncrasy of spelling creeps in. We get *Gracilariadæ* instead of the prior and customary *Gracilariidæ*. This, no doubt, is called a "correction." We can only say that if an alteration is allowed to be made in one case by an individual worker, every individual can with equal justice and reason be permitted to alter or amend (*sic*) every name he pleases. This calls to mind an example of this met with some months ago, and met with, too, in no less a place than in the National Collection. *Luperina nickerlii* was named in honour of Dr. Nickerl, a well-known entomological worker and author of Bohemia, but what on earth *L. niccerli* was did not seem apparent for some time. Surely such individual idiosyncrasies should be avoided, and by all means kept out of work on which public money is being spent. One almost feels inclined to class this with the now notorious *pigichismi*, *polychismi*, etc., series. The subscription price of the work is one shilling for 16 pages, and it is hoped to have the whole work completed in about four years. L. B. Prout will be the author of the various sections of the *Geometrae*, H. Eltringham and K. Jordan are responsible for the *Acraeidae*, H. G. Dyar for the *Limacodidae*, A. Pagenstecher for the *Libytheidae*, etc.—H.J.T.

SOCIETIES.

THE ENTOMOLOGICAL SOCIETY OF LONDON.—*March 20th.*—The following were elected Fellows of the Society:—Messrs. T. W. Allen, M.A., 30, Blenheim Gardens, Cricklewood, N.W.; Edward S. A. Baynes, 120, Warwick Street, Eccleston Square, S.W.; Gerald Bedford, Entomologist to the Union of South Africa Dept. of Veterinary Science, Oudestepoort, Transvaal; Capt. Kenneth A. C. Doig, R.A.M.C., M.R.C.S., F.R.C.P., Villa Sorrento, York Road, Woking; Messrs. Herbert L. Earl, 35, Leicester Street, Southport, Lancs.; C. Jemmett, Ashford, Kent, and South-Eastern Agricultural College, Wye, Kent; R. D'A. Morrell, Authors' Club, 1, Whitehall Court, S.W.; Charles A. Schunk, Ewelme, Wallingford. The death was announced of Mr. H. J. Adams, of Roseneath, Enfield. A COLEOPTERON NEW TO BRITAIN.—Commander J. J. Walker exhibited specimens of *Claviger longicornis*, Müll. (with *C. testaceus*, Preyssl., for comparison), a species of *Coleoptera* new to the British list. ANTS AND DIPTEROUS LARVÆ.—Mr. Donisthorpe exhibited specimens of *Microdon mutabilis*, bred in his observation nest of *Formica fusca*, from Porlock, also the nest itself with the ants and a live larva of *Microdon* taken at Porlock, April 27th, 1911, and pupa cases and larvæ of the fly in spirit. Mr. W. C. Crawley said that he had found one larva in a nest of *Myrmica ruginodis* instead of the usual host *Formica fusca*. LEPIDOPTERA WITH THE "NEPTIS" PATTERN, COLLECTED BY C. A. WIGGINS NEAR ENTEBBE IN 1909.—Professor Poulton exhibited the insects in the following list; all the specimens had been captured in forests within a few miles of Entebbe, between May 23rd and July 25th, 1909. *Neptidopsis ophione*, Cram., *Neptis melicerta*, Drury, *N. agatha*, Stoll., *N. metella*, Dbl.-Hew., *N. nicomedes*, Hew., var. *quintilla*, Mab., *N. nemetes*, Hew., *N. saclava*, Boisd., *N. nysiades*, Hew., ab. *continuata*, Holl., *N. puella*, Auriv., *Deilemera leuconoë*, Hopff., *D. transitella*, Strand. TWO AFRICAN SPECIES OF THE DANAINE GENUS TIRUMALA (MELINDA) AS MODELS, AND ONE AS A MIMIC.—Professor Poulton exhibited *T. formosa*, Godman, and its mimic *Papilio rex*, Oberth., from the Kikugu Escarpment, near Nairobi, British East Africa; the same Danaine, and the transitional *Papilio commixta*, Auriv., from Nyangori, at the N.E. corner of the Victoria Nyanza; *T. mercedonia*, Karsch, and *Papilio mimeticus*, Rothsch., from Buddu on the W. shore of the lake; and *T. morgeni*, Honrath, with three of its *Amauris* models—*psyttalea*, Plötz, *hecate*, Butler, and an undetermined species, probably new, from the Cameroons. NEPTIS SWYNNERTONI, A NEW SPECIES FROM S.E. RHODESIA.—Professor Poulton exhibited the male and female types, described by Mr. Rowland Trimen, F.R.S., together with a specimen captured in the garden at Chirinda (3800 ft.) on March 28th, 1911, by Mr. C. F. Swynnerton. TWO W. AFRICAN LYCÆNIDÆ OF THE GENERA EPITOLA AND HEWITSONIA.—Professor Poulton exhibited the three largest *Lycaenidae* captured by Mr. W. A. Lamborn, and suggested that an undetermined pupæ in the nest of *Oecophylla* might possibly belong to one of them. The three large species were *Epitola honorius*, F., male and female, *E. posthumus*, F., male, and *Hewitsonia boisduvali*, Hew., male and female. AMAURIS EGIALEA STROKING THE BRANDS OF THE HINDWINGS WITH ITS ANAL TUFTS.—Professor Poulton exhibited a male *Amauris egialea*, Cram., recently received from Mr. W. A. Lamborn.

The "paper" enclosing the specimen bore the following note:—"8 a.m. Half mile [from Oni clearing]; January 30th, 1912. Observed flying up and down. It then settled on upper surface of leaf and started to pass its brushes to and fro over its scent patches, exactly as *Amauris niavius* did. Wings were rather over-flexed." Dr. F. A. Dixey and Professor Kellogg, of California, commented on this exhibit. *April 3rd.*—The following were elected Fellows of the Society:—Mr. Henry Hacker, Queensland Museum, Bowen Bridge Road, Brisbane, Queensland; Mr. Cyril Engelhart Latour, Port of Spain, Trinidad, British West Indies; Signor Orazio Querci, Macerata, Marche, Italy. The Council having been invited to elect Delegates to represent the Society at various functions, the following had been elected:—for the Centenary Celebration of the Philadelphia Academy of Natural Sciences, Professor Comstock and Dr. Holland; Professor Fernald, who had also been elected, was unable to attend; for the First Eugenic Congress, in July, Professor Bateson; for the 250th Anniversary of the Royal Society, in July, the President; for the International Congress of Entomology, in August, the President, the Rev. G. Wheeler, Secretary, and Messrs. G. T. Bethune-Baker, H. Rowland-Brown, and the Hon. W. Rothschild. PARASITES ON A PARASITE.—Mr. G. T. Bethune-Baker exhibited a specimen of *Cyclopodia hopei*, Westw., a parasite on the Indian Flying-fox; this was itself parasitized by an *Acarus* of the Genus *Gamasus*, there being no less than seventeen of this small species on one specimen of *C. hopei*. There being no other exhibits and no papers to be read, the President said that he thought it would be a good opportunity to discuss the important subject of Nomenclature, and a long discussion took place, in which many of the Fellows present took part. Eventually Mr. H. J. Turner proposed that a small Committee be appointed to consider the subject of Nomenclature and report to the June meeting, with a view to the coming International Congress. This was seconded by Mr. A. E. Gibbs, and carried *nem. con.* The following Fellows were proposed as forming the Committee, and the names being put from the Chair were unanimously accepted:—Mr. G. T. Bethune-Baker, Dr. T. A. Chapman, Messrs. J. H. Durrant, H. J. Turner, C. O. Waterhouse and Rev. G. Wheeler, with power to add to their number. (Subsequently Mr. L. B. Prout was asked to join this Committee.)

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY. —*February 8th.*—ABERRATION OF P. ATALANTA.—Mr. R. Adkin exhibited an aberration of *Pyrameis atalanta* with a flesh coloured band on the forewing. ABERRATION OF E. ANNULATA.—Mr. Newman, a series of *Ephyra annulata* var. *obsoleta*, in which the discoidal rings on the forewings were absent. MICROSCOPIC SLIDES.—Messrs. Mitford, Edwards, Coxhead and West (Ashtead) exhibited slides under the microscope. *February 22nd.*—DIPTERA FROM MILFORD.—Mr. Andrews, a number of species of the *Trypetidae* family of the Diptera, all from near Milford Haven. DWARF C. EDUSA.—Mr. Turner, a dwarf example of *Colias edusa* from Villeneuve, measuring 32mm. in expanse. LAPLAND BRENTHIDS.—Mr. Sheldon, the Brenthids he took last year in Lapland, *B. frigga*, *B. freija*, *B. polaris*, &c., and gave full notes on their characteristics and habits. LANTERN SLIDES.—Lantern slides were exhibited by Messrs. West (Ashtead), Dennis, Tonge and Main. *March 14th.*—Wm. Bateson, Esq., M.A., F.R.S., F.E.S., and Prof. E.

B. Poulton, D.Sc., M.A., F.R.S., were elected Honorary Members. PARASITIC DIPTERA.—Mr. Andrews exhibited three species of *Syrphidae* parasitic in their larval stage upon lepidoptera, *viz.*, *Catabomba pyrastri*, *Xanthandrus comtus* and *Melanostoma mellinum*. ABERRATION OF N. XANTHOGRAPHA.—Mr. Adkin, an extreme melanic specimen of *Noctua xanthographa*, taken in his garden at Lewisham in 1911. FORCED LARVÆ, ETC.—Mr. Newman, living fullfed larvæ of *Melitaea aurinia*, fed on in a temperature of 60°-70°, and a pair of *Saturnia carpini* with all the usual reddish markings of a clear yellow. It was bred from a yellow ♂ and a red ♀. NEW SPECIES OF COLEOPTERA.—Mr. Blenkarn, the Coleopteron *Haliplus nomax*, from Coatbridge, recently new to science. LARVÆ OF C. EDUSA.—Mr. B. H. Smith, a living larva of *Colias edusa*, from ova laid in October last, one larva had already pupated. *March 28th.*—Mr. C. P. Lloyd, of Ashford Common, Middlesex, was elected a member. OVA.—Mr. B. H. Smith exhibited ova of *Amphidasis strataria*, laid by a ♀ with which he had assembled five ♂s. A NEW SPECIES OF HEMIPTERA.—Mr. West, the specimen of *Psylla albipes*, found by him at Box Hill in October last, and new to the British List of Hemiptera. FORCED LARVÆ, ETC.—Mr. Newman, living examples of *Melitaea aurinia* bred at a temperature of 60°-70°, and full-fed larvæ of *Dryas paphia* fed under similar conditions. He called attention to the extreme scarcity of larvæ of *Arctia caja* and of *Abraxas grossulariata*. SUMMER BROODS OF LEPTOSIA.—Mr. W. G Sheldon, specimens of *Leptosia sinapis* and *L. duponcheli* with the summer broods of the same, var. *diniensis* and var. *aestiva* respectively, and pointed out that the British summer form of the former species was an intermediate form. HADENA PORPHYREA (SATURA).—Mr. R. Adkin, a specimen of *Hadena porphyrea* (*satura*), and read a series of historical and critical notes on the species. DIPTERA.—Mr. Andrews, the Syrphid, *S. arcticus*, taken at Chattenden on March 12th. NEW ABERRATION OF M. OBLONGOGUTTATA.—Mr. Ashdown, a specimen of *Mysia oblongoguttata* ab. *nigroguttata*, from Oxshott, in May, 1911, and recently described as new. MELANIC D. APPLANA.—Mr. Sich, for Mr. G. B. Routledge, a melanic example of *Depressaria applana* from Carlisle. CALLOPHRYS AVIS.—Mr. A. E. Tonge, a living specimen of *Callophrys avis*, bred *ab. ovo*. ORNITHOPTERA.—Mr. Edwards, examples of the closely allied *Ornithoptera*, *O. lydius* and *O. croesus*. LARVA OF SIALIS LUTARIA.—Mr. H. Main, the larva of the alder-fly, *Sialis lutaria*. *April 11th.*—RACES, ETC., OF P. NAPI.—Mr. Gibbs, long series and specimens of *Pieris napi* from various British localities, and pointed out their racial characters with reference to various continental races and forms. HYBRIDS AND ABERRATIONS OF LEPIDOPTERA.—Mr. Cowham, hybrid *Nyssia zonaria* and *Biston hirtaria*, varied series of *Hybernia leucophaearia* and *H. marginaria*, small forms of *Leucania pallens* probably of the 2nd brood, and bred specimens of *Zonosoma pendularia* from Oxshott, referable to the rosy form var. *subroseata*. RACES OF M. AURINIA.—Mrs. Hemming, bred series of *Melitaea aurinia*; the Carlisle series included a melanic form and var. *virgata*, the Welsh series included forms with very red ground colour, and the Oxford series contained very pale specimens as well as a specimen closely resembling *M. cinxia*. LARVÆ OF R. PHLÆAS.—Mr. Quarrington, living larvæ of *Rumicia phlaeas* taken wild on April 7th and 10th. LARVAE OF LEPIDOPTERA.—Mr. Newman, full-fed larvæ of *Abraxas*

grossulariata, kept in sleeves out-doors, and living pupæ of *Dryas paphia* and *M. athalia*. Dr. Chapman, living larvæ of *Leioptilus tephradactyla*. H. ANDRENAEFORMIS LARVÆ.—Mr. Tonge, a branch of *Viburnum* from Tilgate with four larvæ of *Ægeria andrenaeformis*. ABUNDANCE OF B. HIRTARIA.—Mr. Colthrup, noted the abundance of *Biston hirtaria*, this season especially around London. PAPER ON VARIETAL NAMES.—Mr. R. Adkin, many examples of named varieties of British Lepidoptera to illustrate his paper entitled, "Varietal names as applied to British Lepidoptera." *April 25th.*—STEREOSCOPE.—Mr. Dennis exhibited a stereoscope fitted up so as to show diminution and intensification of the stereoscopic effect. BORNEAN LEPIDOPTERA.—Mr. H. Moore, Lepidoptera from Karang, N. Borneo including *Papilio paradoxus* var. *telesicles*, *Hestia hypermnestra* and var. *belina*, *Hestia lynceus*, a large species of *Nyctalemon*, etc. THE GENUS CHARAXES.—Mr. Edwards, several species of the genus *Charaxes* from Central and South America, and a *Cucullia verbasci* which had been two years in pupa. EARLY EMERGENCE.—Mr. Lucas reported that *Boarmia cinctaria* was out on April 5th. LANTERN SLIDES.—The rest of the evening was given up to the exhibition of lantern slides by Messrs. Dennis, Lucas and Edwards, the last named showing slides illustrative of the anomalous animal the *Peripatus*. *May 9th.*—Mr. J. E. Gardner, of Upper Clapton, was elected a member. LOCAL RACE OF H. LEUCOPHÆARIA.—Mr. Jäger, for Miss Edwards, a series of *Hybernia leucophæaria*, from E. Grinstead, with which a large percentage of var. *marmorinaria* had occurred this year. D. LUTEAGO VARIATION.—Mr. R. Adkin, specimens of *Dianthoecia luteago*, and read notes on the two varietal forms *barrettii* and *picklini*. LABELLING INSECTS.—W. R. Adkin then read a paper entitled "Labelling Entomological Specimens," after which a considerable discussion took place. *May 23rd.*—DIPTERA.—Mr. H. W. Andrews exhibited specimens of the Dipteron *Brachyopa bicolor* a Syrphid from Bexley, with the Anthomyiid *Hyctodesia scutellaris*, which it closely resembled. RAPID DEVELOPMENT OF P. LECHEANA.—W. Alfred Sich, specimens of *Ptycholoma lecheana*, bred on May 23rd, from larvæ taken at Richmond on May 11th. D. BIFIDA COCOON.—Mr. Cowham, a cocoon of *Dicranura bifida* from which he had observed the imago emerge after softening a portion with a fluid which it had secreted. S. ORION LARVA A MINER.—Dr. Chapman, a larva of *Scolitantides orion* in its first instar mining between the cuticles of a leaf of *Sedum telephium*. THE GENUS CŒNONYMPHA.—Mr. A. E. Gibbs, a large number of species of the genus *Coenonympha* and read notes on the variation, characteristics and distribution of the various species in the Palæarctic and Nearctic areas. Mr. Kaye, the genus *Coenonympha*, referring particularly to the large size and minute ocelli of the undersides in Irish specimens of *C. tiphon*. Mr. R. Adkin, *C. tiphon* from English, Scotch and Irish localities and remarked on their general local characteristics, and *C. pamphilus*, referring to the varied development of the eye-spots. Mr. Sheldon, fine series of the rarer species, *C. hero*, *C. oedippus* and *C. iphioides* and remarked on the unaccountable absence from Britain of the extremely common European species *C. arcania*. Mr. Curwen, long and varied series of *C. pamphilus* and *C. dorus* and called attention to the occasional development of a row of sub-marginal spots on the forewing. Mr. Edwards, series of several species including dark *C.*

arcania and species of the allied genus *Hypocistina* from Australia. Mr. Turner, series of various Palæarctic and Nearctic species, including *C. elko* from Vancouver. *June 23rd.*—A Rare Orthopteron, etc.—Mr. West (Greenwich) exhibited the very scarce Orthopteron, *Platycleis roeselii* from Greenwich, with *P. grisea*, *P. brachyptera*, and *Thamnotrizon cinereus*, closely allied species, for comparison, and also the destructive Dipteron, *Meredon equestris*, bred from daffodil bulbs. Mr. Lucas, *P. roeselii* from N. Essex. Local Species from the Isle of Wight.—Mr. Blenkarn, *Anthrocera trifolii* ab. *minoides* from Bembridge, a form new to the Isle of Wight, and *Spilosoma urticae* from Sandown marshes, with an example of *Colias edusa*. Of Odonata he showed *Calopteryx splendens* from Brading; of Coleoptera, *Dichirotrichus pubescens* from Bembridge, with four perfect legs on the left side; *Opillio molis*, a local species from W. Wickham, on oak; and *Bembidium ephippium* from Culver Cliffs, a rare record for the Isle of Wight. A Gynandromorph.—Mr. L. W. Newman, a gynandromorph of *Amorpha populi* bred, the left ♀ a vivid pink and large, the right ♂ normal and small, the antennæ both ♀. Also living pupæ of *Pachnobia hyperborea* and a stump of birch from which sixteen pupa cases of *Aegeria culiciformis* were projecting. Early stage of a Wasp's Nest.—Mr. A. E. Tonge, the commencement of the nest of the Common Wasp, *Vespa vulgaris*, and wild laid ova of *Aegeria tipuliformis* on the twig of a currant-bush mid-way between the nodes. Immigrant butterflies.—Mrs. Hemming communicated a note on the occurrence of *Colias* on the S. Downs, the obtaining of ova from a captured ♀, and the habits of the young larvæ. Many *Pyrameis cardui* were seen at the same time. A Local Coleophora.—Mr. Sich, larval cases of *Coleophora discordella* from Folkestone Leas. A "Walking Stick."—Mr. Hall, the Orthopteron known as *Dixippus morosus* (*Linchodes* sp.). Tortrix teucriana.—Mr. Adkin, the series of *Tortrix teucriana* from the "Tutt" collection and read notes on the species.

Lancashire and Cheshire Entomological Society.—*February 18th.*—Mendelian and other results of Breeding.—Mr. Wm. Mansbridge contributed notes on "Breeding experiments with the black race of *Boarmia repandata* var. *nigra*," and summarised the results as follows:—In 1909 (*a*) a wild ♀ of the local type form gave all var. *nigra*; (*b*) a wild ♀ var. *nigra* gave all black moths; (*c*) a pairing of *nigra* ♂ and type ♀ gave all types. In 1910 (*a*) type × type gave 66·6% type and 33·3% var. *nigra*; (*b*) *nigra* × *nigra* gave 92% *nigra* and 8% type; and (*c*) *nigra* × *nigra* gave 96% *nigra* and 4% type. While in 1911 (*a*) type × type gave all type; (*b*) *nigra* ♂ × type ♀ gave all *nigra*; (*c*) *nigra* × *nigra* gave 95·7% *nigra* and 4·3% type; and (*d*) a second experiment of the same gave 70·5% *nigra* and 29·5% type. In 1910 moths from the broods (*a*) and (*c*) were used for the cross pairings of type and variety, the others being inbred, and in 1911 all were inbred. Irish P. icarus.—Dr. Tinne exhibited *Polyommatus icarus* from North Ireland, including very blue females. *March 18th.*—The Leaf Insect.—Mr. H. S. Leigh read a paper dealing with a few points connected with the life history and habits of the Leaf Insect, *Pulchriphyllium crurifolium*, Serv., and the Praying Insect, *Sphodromantis guttata*, Thunb. After remarking that the metamorphosis of the Leaf Insect and Praying Insect is slight—young individuals being very similar to the adults in general appearance—some of the results

of breeding experiments with these insects were briefly described. The wonderful similarity, both in form and habits of the Leaf Insect to various plant structures was remarked upon, and it was pointed out that development is slow and requires considerable heat and moisture for its continuance, restricting the geographical distribution of these creatures to some of the islands of the Tropical Zone. Sexual dimorphism is very pronounced, the females being large and foliaceous, whilst the males are much more elongate and are not, therefore, so leaf-like in appearance. The feeding habits of *S. guttata* were described in some detail, as were also the methods of oviposition obtaining in the two families under consideration. The *Mantidae* possess some strange modifications in structure, resulting from their carnivorous habits. Thus, the front legs, which are modified for the seizure of prey, are developed to an extent out of all proportion to the same limbs in other insects. The *Mantidae* enjoy a wider distribution than the *Phasmidae*, being abundantly represented in all the warmer regions of the world, including South Europe. P. ARGUS (ÆGON).—Dr. P. F. Tinne exhibited *Plebeius argus* (*aegon*), from the New Forest and other localities. *April 15th.* — LEPIDOPTERA OF WICKEN. — The Rev. S. Proudfoot, of Altrincham, communicated a paper, "Collecting in Wicken and District," in which he gave a most interesting resumé of his experiences in the district among the Lepidoptera, describing the various methods of collecting practised, and enumerating the special insects peculiar to Fenland. MADEIRAN BUTTERFLIES.—Dr. Tinne exhibited a drawer of Madeiran Rhopalocera, comprising *Pyrameis atalanta* and var. *calliroë*, *Pyrameis cardui*, *Issoria lathonia*, *Colias edusa*, and *Satyrus semele*. NEUROPTERA.—Mr. Leonard West brought live specimens of *Taeniopteryx nebulosa* and *Namoura inconspicua* from Heapy, near Chorley. ABERRATIONS OF LEPIDOPTERA.—Mr. Wm. Mansbridge showed a fine intermediate variety of *Amphidasis betularia*, bred from a wild larva taken at Simon's Wood, Lancs., and a unicolorous fuscous-grey aberration of *Scoparia ambigualis*, from Burnley. SATURNIIDÆ.—Mr. Oscar Whitaker exhibited a pair of *Attacus orizapa* bred on Willow.

OBITUARY.

Professor John Bernard Smith.

Two books on our Library shelves recall the above name to us, one is *Economic Entomology*, an example of those admirable summaries of Entomological Science, serving the double purpose of an introduction to Entomology in general and as a book of reference for those interested in economic Agriculture, etc., the other book is *A Catalogue of the Lepidopterous Superfamily Noctuidae found in Boreal America*, a useful book of reference for systematists and students.

John Bernard Smith was born in New York in 1858, and was brought up to the practice of law. But in 1884 the uncongenial nature of this profession conquered him and he accepted an appointment in the Department of Agriculture, going as Curator in 1886 to the U.S. National Museum at Washington. During the three years of his work in that institution he published some excellent works including a *Monograph of the Sphingidæ of America north of Mexico*, *A*

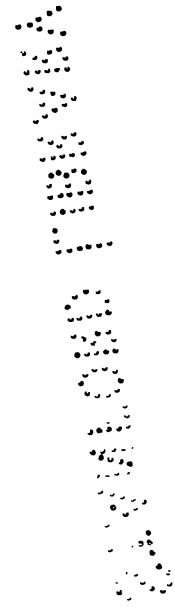
Preliminary Catalogue of the Arctiidae of Temperate North America, A Revision of the Lepidopterous Family Saturniidae, and commenced his various contributions to a knowledge of the Family *Noctuidae* in which he later on became a recognised authority. In 1889 he became Professor of Entomology at Rutger's College and entomologist to the New Jersey Agricultural Experimental Station at New Brunswick, positions which he held to the time of his death. Of course much of his work was on the lines of official economic research and the preparation of reports, bulletins, etc., of which many admirable issues were given forth. Still he found time to work hard at his favourite group the *Noctuidæ*, to set forth some startling views on the homologies of the mouth organs in his *Contribution toward a knowledge of the Mouth Parts of the Diptera*, to take an intense practical interests in the question of the extermination of the mosquito, concerning which his suggestions of ditching the marshes, has proved eminently successful, and also to write articles and books on the popular side of the study of insects. He was a strong supporter of Societies, fully recognising that they were indispensable both for keeping up the public interest in Entomology and for bringing students of insect economy together for their mutual benefit and advancement. His views on this were practical, for he was not only a member, but an active member, in all the societies he could get in touch with, at one time or another serving as president, secretary, or editor of transactions and proceedings, or giving his services to read papers and to lecture. There is a portrait of him in the *Ent. News* for May to which magazine we are indebted for the above details.—H.J.T.

Robert Walter Campbell Shelford.

By the death, on June 22nd, of Robert Walter Campbell Shelford, the science of entomology has lost an indefatigable worker. It will be long before his place can be filled. Although his mature work was chiefly concerned with the *Blattidae*, Shelford's interests as a naturalist covered an unusually wide field. He had written upon anthropological subjects, flying snakes, and insect mimicry, and at the time of his death was preparing a natural history of Borneo.

Shelford was born at Singapore, August 3rd, 1872. He was educated at King's College School and Emmanuel College, Cambridge, where he took a second class in both parts of the Natural Science Tripos. In 1895 he became a demonstrator in biology under Prof. L. C. Miall at the Yorkshire College, Leeds. In 1897 he became Curator of Rajah Brooke's Sarawak Museum at Kuching, a position which he retained for seven years. The excellent work he did in the museum and his bright, energetic personality will long be remembered by the European colony. After travelling for several months in the Malay Archipelago Shelford came to Oxford in the autumn of 1905 as Assistant Curator of the Hope Collections. He at once began his important study of the *Blattidae*, in the course of which he worked out all the important European collections and wrote a long series of admirable memoirs.

Shelford had, as a child, contracted tubercular disease of the hip-joint as the result of a fall downstairs. A fall from a rickshaw in Borneo was followed by a reappearance of the old trouble, but he made a good recovery. An accidental slip caused the disease to break out again in April, 1909, and led to the terrible suffering of his last illness.—E. B. Poulton.





Yrs ever
R. Shelford

Robert Shelford.

By MALCOLM BURR, D.Sc., F.L.S., F.E.S.

Entomology has indeed suffered a severe loss in the distressing death of Robert Shelford.

He was born in Singapore on August 3rd, 1872, and thus was cut off before completing his fortieth year. Educated at first privately, and then at King's College, London, he went to Emmanuel College, Cambridge, where he passed second in the Science schools. He thus entered upon his career with a wide and thorough scientific education.

His first appointment, as a teacher of Physiology at Leeds, was abandoned comparatively early for the Curatorship of Rajah Brook's Museum at Kuching in Sarawak. Here he spent seven years, which must have been a continual source of delight to a man of his tastes, education and powers of observation.

Returning to England he took up his abode at Oxford, where he undertook the re-arrangement of the rich collection of Orthoptera in the Hope Department of the University Museum of Zoology.

He found the *Blattidae* in great need of revision, and proceeded to revise the group. He set himself to do this task with characteristic energy and thoroughness. He entered into correspondence with entomologists in every part of the globe, and in spite of ill-health, visited a number of continental museums. He was thus able to examine a large number of types and to work out the collections brought home by numerous scientific travellers. His results were published in a large number of papers containing revisions of several groups and many specially faunistic papers. At the time of his death, he was engaged upon the volume dealing with the *Dictyoptera* or *Blattidae*, for the series of volumes published by the Indian Government on the Fauna of British India; his preliminary notes are sufficiently ample to afford a valuable foundation for the next student to undertake the task. He acquired a splendid knowledge of the group, and it cannot be too greatly regretted that he was not permitted to complete that monograph, which was the aim and object of his scientific ambitions. He had the command of vigorous and clear language, and the introductory remarks to his various papers are a model of terse and crisp expression.

His wide knowledge and the experience of seven years in the tropics forbad him to be a narrow-minded specialist. His contribution to the knowledge of Mimicry in Bornean Insects, published in the *Transactions of the Entomological Society*, are well known, but his papers of Malayan Anthropology are perhaps less well known, admirable though they are.

His work at Oxford was often interrupted by failing health, and in 1909 he was obliged to abandon it. Under medical advice he went to Margate, where it was hoped that the strong air and his constitution would restore him to activity. He patiently waited till the end of 1910, when he returned to Oxford; but it was of no avail; he was soon compelled to go back to Margate. He was a prisoner on a spinal carriage, which made it almost impossible for him to handle specimens, and he had the mortification of knowing that his systematic work was to remain uncompleted. His ever active brain

made intellectual lethargy impossible, and his energy found vent in a number of notes on general subjects that lie, alas, unfinished, as also the manuscript of a book upon Nature in Borneo, that he did not despair of completing. It is to be hoped that much of this posthumous work may yet see the light.

In 1908 he married Audrey Gurney Richardson, of Corfe Down Vicarage, Bath, but their happiness was quickly marred by his breakdown. During the last two years at Margate it was the devotion of his wife and his intellectual vigour which kept him alive and sane through the monotony of suffering. He underwent several operations, but pain became more and more frequent, till it developed into almost unbroken agony, and though his end, when at last it came, was most distressing, his friends can but be glad that he is at rest.

Entomologists the world over will offer their most respectful and sincere sympathy to his widow; but all will exclaim, "Oh, the pity of it!"

Nomenclature.

At the April meeting of the Entomological Society of London a Committee was appointed to consider the question of Nomenclature, with a view to the coming International Congress. The following Fellows were chosen to form the Committee, with power to add to their number:—Mr. G. T. Bethune-Baker, Dr. T. A. Chapman, Messrs. J. H. Durrant, H. J. Turner, C. O. Waterhouse, and Rev. G. Wheeler. Mr. L. B. Prout was afterwards co-opted. The Committee, which probably represented every divergent form of opinion on the subject, was nevertheless unanimous in drawing up the following report, which was adopted as a resolution by the Entomological Society of London at their Meeting on Wednesday, June 5th, 1912, for presentation to the International Congress of Entomology in August.

"The present independent and irresponsible methods of giving and adopting names having resulted in much unnecessary synonymy, and even graver abuses, the Entomological Society of London feels that the time has arrived when some check should be placed upon the practice, of more weight than that which can be exercised by any single individual, society, or publication, and would urge upon the International Congress the establishment of a permanent International Committee to deal with questions of nomenclature as affecting Entomology; to consider what elucidations, extensions or emendations, if any, are required in the International Code, and to confer with the International Commission of Zoological Nomenclature. The Entomological Society of London recommends that the International Entomological Committee, when formed, shall take such action as to ensure the adequate representation of Entomology on the International Zoological Commission. The Society also recommends that, considering the difficulty of frequent International meetings, the leading Entomological Society of each country be invited to appoint a Committee whose duty it shall be to deal with all questions arising in their own country, subject to reference to the International Committee; and suggests that the International Committee be composed of two, or three, members of each of the National Committees, elected either by the Committees, or directly by the electing Societies."

This Resolution was presented in due course at the International Congress with the results shown in our Reports from various contributors.

"Nomenclature," etc., at the Congress.

By G. T. BETHUNE-BAKER, F.L.S., F.Z.S., F.E.S.

The second International Congress of Entomology has come and gone, and we believe that the universal verdict of all present will be that it was an unqualified success, both from the scientific as well as from the social point of view. The arrangements for the meetings and for recreation were all that could be desired, the only drawback being the fact that Zeus must have thought we were getting too god-like in our depth of knowledge and that therefore he would open the windows of heaven in an attempt to drown us; fortunately Mother Earth came to the rescue of her sons and swallowed up the floods as they descended. The resolution of the Entomological Society of London and the paper by the Rev. G. Wheeler were taken with Monsieur Oberthür's and Mr. Prout's papers at the sectional meeting on the Tuesday afternoon, instead of in the morning of that day at the general meeting. The alteration was a wise one, for it focussed the more controversial aspects of Nomenclature into a definite point and all the advocates of the subject heard each other. The resolution from our London Society was referred to the Executive Committee to report on at the General Meeting. Mr. Wheeler's paper followed, but time forbad discussion on it, although afterwards several of our colleagues from across the water expressed themselves entirely sympathetic with many of the suggestions contained therein—this being especially the case with the delegates from the other side of the Atlantic. Monsieur Charles Oberthür came next, on the subject he has made his own, "Pas de bonne figure à l'appui d'une description, pas de nom valable." We fail to find words to describe the delightful oratory of our revered French "Father in Entomology." A page of notes (not long ones) lay before him but were rarely referred to as the eloquent scientist poured forth in most graceful and beautiful language the theme so dear to his heart. The speech (I might describe it without fear of dissent as THE speech of the Congress) was a long one, but not a moment too long, as was shown by the long continued round of applause that greeted him as he resumed his seat. Mr. Prout's paper, read by the Rev. K. St. Aubyn Rogers, followed, taking the other side of the question, but when this was finished there was only time to discuss the Entomological Society's resolution with the result already stated. The discussion on the other papers was unfortunately cut short by that most rigid of all timekeepers—the clock—and no action was taken by the meeting; this no doubt partly arose from the feeling that all matters of detail had better be left to the International Committee to deal with.

On the Thursday afternoon Monsieur Olivier presided over the second meeting devoted to "Nomenclature," the first paper being that by Dr. Horn of Berlin, a protest against making any exceptions to the law of Priority. Dr. Horn also spoke as a master of his subject and one wished one could follow him in the details of the matter, but one's knowledge of German, alas! only enabled one to grasp the main

outline of the argument, with which the writer is almost entirely in accord. Capt. Kerremans' paper followed on the necessity of restraining varietal names and replacing them by a letter or number. We felt strongly with the speaker as to the need of restraining the naming of aberrations—mere individual aberrations—but we cannot see what object would be gained by cataloguing them with a letter of the alphabet or a number. If that method is to be admitted there is no reason why a name should be refused. From our point of view the need is to induce all editors of our magazines and Transactions to decline to accept a name of a mere occasional aberration. Monsieur Olivier then read his short paper on the "Necessity of the Latin tongue for Entomological Descriptions," and so closed a very interesting session.

The final word of the Congress on "Nomenclature" took place at the closing meeting on Friday afternoon when the Executive Committee reported their deliberations on the one Resolution that had been referred to them, and it was a great satisfaction to learn that for all practical purposes they adopted our Entomological Society's suggestion, *viz.*, that National Committees should be formed to assist the International Committee on Nomenclature for Entomology, and that these Committees should be formed by the different countries themselves. Some little discussion followed, during which the President of the London Society referred to some criticisms of his in certain secret places and was so good as to withdraw them all. One of the American delegates (we believe but we are not certain) also asked what would happen if the Entomological International Committee came into definite conflict with the Zoological Commission on Nomenclature. This seemed almost a "poser," but Dr. Jordan stood to his guns and expressed the opinion that in such a case the Entomological Committee would be able to, and would, stand alone, a reply which drew forth a round of applause. The report of the Executive Committee was then voted on and carried unanimously.

In the Bionomic and Mimicry Sections many interesting exhibits took place, but among them all Dr. Perkins' small box of Hawaian wasps was perhaps the most impressive. In these islands the primitive wasps were black, later on the yellow banded form came in and became more or less dominant, with the result of evolving a yellow banded form among the indigenous species; this occurred in all the islands but one, situated far out in an isolated position. To this one island the yellow banded species also made their way, but have not become dominant, and the interesting result has been brought about that the indigenous black species have so influenced the younger yellow banded ones, that they are producing varieties that are entirely black on the dorsum.

Professor Wheeler's observations on the Acacia Ants of Central America were most instructive and elicited many queries from those present, whilst Mr. Donisthorpe's and Mr. Crawley's papers also gave one food for thought. On the last day Dr. Seitz read in English his experiments on the eye and how insects see the world. These experiments showed that he could attract butterflies with paper models, which he showed, together with a box of *Anthocharis charlonia*, many of which had been caught toying with the coloured models that had been pinned on to a board; this tended to show that the eye was the

paramount organ in this case. He had also conducted some experiments with ultra-violet rays, which seemed to indicate that these rays had a very strong effect on insect life. Time again prevented a discussion on this interesting theme, which certainly would otherwise have taken place. The concluding ceremony was a Banquet in Wadham Hall, and many interesting and more or less impromptu speeches were delivered after the toasts, the speech that took one by surprise most of all being the response to the health of the ladies and the science of entomology, when Miss Rowland-Brown was called to her feet to perform this little duty. Needless to say a most graceful and entertaining speech fell from her lips, which quite charmed the assembled guests. The final day was spent at the Tring Museum by the kind invitation of the Hon. Walter Rothschild, and many will never forget the sight of the treasures there exhibited.

We must not close without a word on the private café in the garden of the Warden of Wadham, which without doubt added very largely to the social success of the Congress; most of the visitors partook of their luncheons and teas there, and it soon became the meeting place for all. It was a great pleasure to the writer to make the personal acquaintance of many entomologists from different parts of the world, with whom he had corresponded for years, and also with others whose names had been known for long. The memory of this Oxford Congress will not soon fade and will we hope be refreshed in 1915 at Vienna, under the presidency of the well known entomologist Dr. Antoine Handlirsch.

The Second International Congress of Entomology.

By Rev. G. WHEELER, M.A., F.Z.S., F.E.S.

It would have been difficult to choose a more appropriate place than Oxford for an International Congress, or a more appropriate building for its meetings than the University Museum, containing as it does the Hope Department of Entomology, one of the finest, and probably the best arranged Insect collection in the world. The Colleges and other University Buildings too, are those most calculated in this Country to impress our foreign Visitors, and they cannot be said to have failed in this particular. Several of the Colleges had undertaken to put up members of the Congress, and others were ready to do so had more space been required. The large marquee put up in the private garden of the Warden of Wadham, who had generously placed this delightful retreat at the disposal of the members, added greatly to their enjoyment and to the opportunities of social intercourse among them, for most of them availed themselves of this for lunch and tea, and many also for the evening hours. Indeed, it would hardly be too much to say that a larger proportion of the important work of the Congress was carried on informally in the tent, than officially in the Lecture-rooms at the Museum. Illness, now happily a thing of the past, prevented the attendance of the General Secretary, Dr. Malcolm Burr, till near the end of the Congress, but his place was most efficiently supplied by the Secretaries of the Reception Committee, Mr. Eltringham and Mr. Grosvenor, especially the former, whose work was invaluable, and Dr. Burr's Secretary, Mr. Loesch, though not himself an entomologist, also rendered great assistance.

The Congress opened informally with a meeting in New College Hall, at 8.30, on Sunday evening, August 4th, when badges and programmes were distributed and arrangements made known, old acquaintances renewed, and new ones made, and a general atmosphere of "feeling at home" created. The formal opening took place at 10.30 on Monday morning, the President, Professor Poulton, being in the Chair, with Professor Horváth as Vice-Chairman, and Mr. Eltringham, as at the other General meetings, as Secretary. After welcoming the Congress the President gave a most interesting Address, illustrated by many drawers of specimens, tracing the mimetic changes of the ♀ of *Papilio dardanus* across Africa, from Madagascar to the west coast. The Professor is singularly well placed for investigations of this kind, being in constant touch with Fellows of the Entomological Society of London, who, for various reasons, are settled across Africa, and who are working (entomologically speaking), under his direction. The Hon. N. C. Rothschild then read a paper on "National Reserves," urging the preservation in different parts of the Kingdom of suitable areas, in which the native flora and fauna may be preserved for the enjoyment of the student and the public. A society has been formed with this object, and its prospectus will be issued shortly.

In the afternoon there were two sectional meetings, one "Economic and Pathological," presided over by Dr. Howard, with Dr. Newstead as Vice-President and Mr. Scott as Secretary, at which Sir D. Morris read an important paper on behalf of Mr. W. A. Ballou, entitled "Some Entomological Problems in the West Indies," dealing with the attacks of insect pests on sugar-cane and cotton plants, and the control of certain insects by their natural enemies. Two other papers were read on behalf of Messrs. J. Dewitz and R. S. MacDougall, that by the latter author being entitled "Heteroptera and Thripidæ as apple enemies." At the other sectional meeting on "Systematics and Distribution," as Mons. Oberthür had not yet arrived, and the Vice-President, Dr. Sharp, could not be found, the Chair was taken by the Hon. N. C. Rothschild, the Rev. G. Wheeler being Secretary. Two papers were read, one, by Prof. Kolbe, on "The unequal Value of the Zoogeographical Elements in the different Zones of each Continent, as the Result of varying Geological Periods," the other, a short paper by Dr. Horn on "The Importance of Junk's Coleopterorum Catalogus."

The General Meeting on Tuesday morning, under the Presidency of Prof. A. Lameere, with Prof. van Bemmelen as Vice-President, was given up to a most interesting paper, illustrated by lantern slides, entitled "The Silk of Spiders and its Uses," dealing with the different forms of silk spun by spiders and the different uses to which they put them, by Prof. Comstock. This was followed by a meeting on "Evolution, Bionomics and Mimicry," with Herr Sjöstedt in the Chair, Dr. Skinner as Vice-President, and Mr. Doncaster as Secretary, in which three papers, (or more correctly speaking addresses) were given, all illustrated by specimens, by Prof. Poulton, Dr. Perkins, and the Rev. K. St. Aubyn Rogers, their subjects being respectively: "Mr. Wiggins' and Dr. Carpenter's researches in Mimicry in the forest butterflies of Uganda," "The colour-groups of the Hawaiian Wasps," and "Mimicry in the two sexes of the East African Lycænid *Alaena picata*."

In the afternoon there were two sectional meetings the clashing of which was somewhat unfortunate. At that on "Nomenclature" Prof. Poulton was presiding, the Vice-President being Dr. Kertész, and Dr. Jordan acting as Secretary. The Resolution of the Entomological Society of London* was introduced by Mr. Bethune-Baker, and supported by the Rev. G. Wheeler in a paper of "Suggestions for securing simplification and permanency in Nomenclature." Mons. Oberthür followed with a paper (not read, however, but most eloquently delivered without MS.) on the absence of a good figure invalidating a name, and the Rev. K. St. A. Rogers read Mr. Prout's paper on "The place of figures in Descriptive Entomology." On the proposal of Dr. Howard, seconded by Dr. Skinner, the Resolution of the Entomological Society was referred for consideration, and report at the General Meeting on Friday, to the Executive Committee of the Congress. Over the other section, "Morphology and Anatomy" Prof. Calvert presided, with Prof. Meijere as Vice-President and Mr. R. S. Bagnall as Secretary; here Dr. Dixey gave a paper on "Scent-organs in the Lepidoptera," Prof. Carpenter on "The presence of Maxillulæ in Beetle Larvæ," Dr. Hovráth on the "Construction of the Elytra of the Cicadides" and Fr. Navas, S.J., on "Some organs of the wings of Insects," the last paper, we hear, was illustrated, not only by the Lecturer, and an amicable contest took place on the black board, which ended in Fr. Navas being master of the field, owing to the collapse of the other draughtsman's chalk!

At Wednesday morning's General Meeting Prof. Comstock took the chair, the Hon. W. Rothschild being Vice-Chairman. Prof. van Bemmelen gave, in admirable English, a paper, illustrated by diagrams, on "The Phylogenetic significance of the Development of the Butterfly Wing," and Mr. Doncaster a paper on "Sex-limited inheritance in Insects," illustrated by series of *Abraxas grossulariata*, and *Drosophila ampelophila*. Much further investigation would seem desirable, since present appearances suggest the unexpected division of Humanity and Diptera on the one side against Birds and Lepidoptera on the other!

There were two sectional meetings, the one "Economic and Pathological," presided over by Herr Jablonowski, with Dr. Perkins in the Vice-Chair and Mr. Moulton as Secretary, at which the following important papers were read: "On the destruction of *Stauronotus maroccanus* in Hungary," with lantern illustrations, and "On the destruction of *Cochylis* and *Eudemis* in the vineyards," by Herr Jablonowski; "The necessary investigation with relation to Insect and Fungus enemies of plants preliminary to Legislation," by Mr. A. G. L. Rogers, and Prof. Theobald's on "Aphides attacking cultivated Peas." The other sectional meeting on "Systematics and Distribution" was held under the Presidency of Capt. Kerremans, Father Navas being Vice-President and Mr. Blair Secretary. At this the Rev. J. Waterston read a paper on "A new Scottish parasite on *Procellaria*," the other papers having been withdrawn or transferred.

On Wednesday evening Mr. Neave's most interesting lecture, with beautiful lantern illustrations, on the "Travels of an Entomologist in Eastern Africa" was given, having been transferred from Thursday

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* See page 206.

morning; this followed the precedent of Tuesday evening to which Dr. Jordan's papers "On the new sub-order *Arixenia*," and "The Viviparity of *Polyctenidae*," had been transferred.

Consequent upon this arrangement it resulted that on Thursday morning at the General Meeting under Dr. Everts, with Dr. Handlirsch as his Vice-President, the only paper left to be read was that of the latter on "The Geographical Distribution of Insects in its relation to Phylogeny and Palaeontology," but an unannounced paper by Prof. Osborne on "Lake Shore Insects," was also given. After this there were three meetings occurring simultaneously, as the meeting on Tuesday evening had been adjourned. The other two were (1) on "Bionomics, Evolution and Mimicry" and (2) on "Morphology." At the first, presided over by the Rev. F. D. Morice (President of the Entomological Society of London), with Prof. Wheeler of Harvard as Vice-President and Mr. Bethune-Baker as Secretary, two papers were read; the first by Messrs. Donisthorpe and Crawley, "On the Founding of Colonies by Ants," was illustrated by several Observation Nests with their living inhabitants, and the second, by Prof. Wheeler, "Observations on the Central American Acacia Ants," by diagrams on the black-board. In the section devoted to "Morphology," where M. Bouvier presided, Dr. Speiser being Vice-President and Mr. Meade-Waldo Secretary, Papers were read on "The Devolution of Wing-structures as shown in the *Blattidae*" by Mr. Lowe, and on the "Regeneration of the legs in *Limantria dispar*," by Dr. Chapman.

In the afternoon two Sectional Meetings took place; at that on "Nomenclature," in the absence of Dr. Dixey the chair was taken by the Vice-President, Dr. Olivier, Dr. Jordan acting as Secretary. Dr. Horn's paper, nominally a "Protest against the admission of exceptions to the Law of Priority," was really a protest against individual judgment in the matter; Capt. Kerremans' on "The necessity for restricting names given to varieties and for replacing them by letters or numerals," only considered the first of these points; the other was a short paper from Dr. Olivier on "The necessity of the Latin tongue in Entomological Descriptions." Over the "Economic and Pathologic" section Dr. Gordon Hewitt presided, Dr. Ferrant being Vice-President and Mr. Rowland-Brown Secretary. Here an important paper was read by Prof. Forbes on "*Simulium* and Pellagra in Illinois," the other being by Mr. Lowe called "How to kill that fly," which does not seem as yet to have been satisfactorily determined.

On Friday morning there was no General Meeting; the Sectional Meeting on "Evolution, Bionomics, and Mimicry," was under the Presidency of Prof. Kellogg, with M. Grouvelle as Vice-President, and Mr. Hamilton Druce as Secretary, that on "Systematics" under Prof. Banks, Dr. Von Schulthess being Vice-President, and Mr. Collin Secretary. At the first two papers were read, one on "The polymorphism of *Papilio polytes*," by Prof. Punnett on behalf of Mr. Fryer, the other by Prof. Poulton on behalf of Mr. Swynnerton on "Pellets ejected by insect-eating birds after a meal of butterflies." This meeting ended with an exhibition of lantern slides by Mr. Hamm of "Insects in resting attitudes in their natural surroundings," from photographs taken by himself, which were in every way beyond praise. At the other meeting Baron von Rosen gave a paper on "Fossil Termites," Dr. Speiser, two papers on "The Geographical Distribution

of some blood-sucking Insects," and "The Geographical Variation of African *Bombylidae*," Prof. Calvert on "Progress of Knowledge of the Odonata from 1895 to 1912," and Mr. Bagnall on "The Order Thysanoptera," "The British *Protura*," and "A synopsis of the Family *Aeolothripidae*," together with exhibitions of new British *Thysanura*, *Collembola*, *Thysanoptera*, *Mallophaga*, and *Myriapoda*, and of Hawaiian *Thysanoptera*. These were the last Sectional Meetings, and in the afternoon Prof. Poulton presided, with Prof. Kolbe as Vice-President, over the last General Meeting, at which two papers were read; the first was given, in English, by Dr. Seitz, on "The Sight of Butterflies," and was an excellent example of the humour with which a scientific investigation may be treated, enhancing, and not decreasing, its value, the other was by Prof. Kellogg on "Distribution and Species-forming among Ectoparasites." After this, General Business was taken in hand. Invitations for the Congress of 1915 had been received from America, from the American Association of Economic Entomologists, and from the Entomological Society of America, but it was thought best to have one more meeting in Europe before crossing the Atlantic, and the invitation of Vienna was accepted, Prof. Handlirsch being elected President. Dr. Jordan, Secretary of the Executive Committee presented his Report, which embodied the greater part of the Entomological Society's Resolution in a series of short Resolutions, which were all adopted, and the President then closed a most successful Congress with an Address of thanks and farewell.

It is impossible to give in a magazine article more than the merest outline of the preceedings of such a Congress as this, and the discussions on the papers—often the most important and useful part—have not even been touched upon. Nor, in this paper, has any attempt been made to enlarge upon the Social and lighter side of the assembly; yet this is by no means without its value, both internationally and individually. As a very well-known German entomologist observed to the writer; "You have certainly shown us how friendly Entomologists can be together, now *we* can hardly get two together without their quarrelling." This was no doubt a *façon de parler*, but it may be taken as showing one useful object-lesson that the Congress provided. Even in the discussions on the thorny subject of Nomenclature there were no "wigs on the green," and certainly the more quietly and amicably thorny questions are discussed the more liklihood there is of an (comparatively) early settlement. In the present case the International Committee on this subject has actually been nominated, and is composed as follows:—Nathan Banks (U.S.A.), C. J. Gahan (Gt. Britain), F. Ris (Switzerland), K. Kertész (Hungary), S. Schenkling (Germany), Y. Sjöstedt (Sweden), H. Schouteden (Belgium) and Dr. Karl Jordan as Honorary Secretary.

The Season 1912.

By T. H. L. GROSVENOR.

In writing a few notes on the current season, from an entomological point of view, one cannot help thinking, that in many respects, it is as remarkable, or perhaps more remarkable, than that *annus mirabilis* (meteorologically) 1911. In the latter year the unusual abundance of *Rumicia phlaeas* was, to my mind, the outstanding

feature, closely followed by the prevalence of variation in the majority of species in the *Rhopalocera*. In addition the migratory species were very few and far between, *viz.*, a few odd *Colias hyale* towards the end of August and the beginning of September, and a few *C. edusa*, which was much the rarer species of the two during the first fortnight of October. Another strong characteristic was the third emergence of those species that produce in a normal season second, or partial second emergences, the characteristic of such third emergences of those species that are subject to seasonal dimorphism being, that the imagines produced were practically identical with those of the typical second emergence.

After such a hot dry season as 1911, one would have expected to see some effect on the progeny in the following year, but this from my own observation only, is apparently not the case; for during the whole of my entomological experience I have never known a season so devoid of anything even tending to variation. The only instance that has shown the slightest effect of last season's drought was in the first emergence of *Pieris napi*, which this year was very scarce. Practically every example examined was very considerably undersized. The cause of this is perhaps not difficult to discover. This species feeding in its larval state on various *Cruciferae*, had to undergo partial starvation last autumn, for the majority of the food plants of the species being biennials, the heat caused the rapid ripening of the fruit, and consequent withering of the leaves. I noted last year several of the larvæ of *P. napi* feeding, or more correctly trying to feed, on the nearly ripe seed pods of *Alliaria*, the leaves of which were quite brown and dry. I experienced a considerable difficulty in providing food for the 4,000 to 5,000 larvæ of this species which I had, and the resulting imagines all tended, but in a lesser degree than the wild specimens, to be considerably smaller than typical.

The season of 1912 commenced in a most promising fashion, many insects appearing at least a month earlier than normal. On March 31st I saw the first *Celastrina argiolus*, and from this date onward it was in fair numbers. On April 5th a male *P. napi* was seen at rest on a bloom of *Arabis*, and on the following day *P. rapae* was seen in fair numbers. Although this was the earliest date on which I saw the species, my brother saw one on March 16th. By April 25th the Pierids and *C. argiolus* were fully out, but with the exception of the latter, very scarce for such generally common insects. On this date I first noted *Euchloë cardamines*, a female; but here again I was late, as a Reigate entomologist informed me that he saw a male during the first week in April. On May 6th I visited Tilgate Forest, and found *Brenthis euphrosyne* fully out; even at this early date it had evidently been out several days as a few males were beginning to get wasted. This species was far more abundant than I have ever before seen it in Tilgate; during the afternoon in question, which was very dull after a bright morning, the imagines were most conspicuous sitting on the dried bracken, the females being generally far better hidden than the males. I was enabled to examine over 500 without chloroforming them, but in common with every species I have worked this season there was no tendency to variation, except that there was a far greater percentage (at least 20%) of the lightly marked males. After this date I paid several visits to the Forest for *B. euphrosyne*, which continued

in fair condition until May 27th, but without finding any trace of variation. Although *B. euphrosyne* put in an appearance so early, *B. selene* did not commence to emerge until an unusually late date, *viz.*, June 3rd, and was rather less common at Tilgate than usual. I visited the locality several times and examined some hundreds but with the same result as with *B. euphrosyne*, variation nil.

The first week in July produced *Pyrameis cardui* in the greatest profusion, all in a most advanced state of senile decay, in many instances it was wonderful how the insect could manage to fly. Whilst cycling between Horley and Balcombe, a distance of about nine miles, I counted no less than 68, together with fair numbers of *Vanesssa io* and *P. atalanta*, but *Aglais urticae* was conspicuous by its absence, indeed I have only seen three imagines during the whole season. Although *P. cardui* was so abundant it has apparently failed to breed in this part of the country, as I have only seen a single freshly emerged imago, but *V. io* and *P. atalanta*, which were much scarcer earlier in the year, are to be met with in considerable numbers.

Having heard that *Colias edusa* had appeared, I made an excursion to Guildford in the hopes of getting a female, as I had previously noted several extensive clover and lucerne fields in the neighbourhood. During the day I saw and netted six males, which I liberated in a field nearer home. I also saw a seventh specimen, a female, which, of course, I failed to net. Between early June and mid-July I was continually seeing odd males, and on July 17th I netted a female, which laid 22 infertile ova. On July 18th I netted a male so recently emerged that it was unable to fly properly. Since this date I have seen about two dozen, and have taken three females in very worn condition whose ova, like those of the first, proved to be infertile. On July 25th commenced the second emergence of *C. argiolus*, and I have never previously seen this species in such abundance. It occurred in hundreds on the Reigate Hills flying round and settling on bramble and clematis blooms. As regards the Lycænids *Agriades thetis*, *A. coridon*, and *Polyommatus icarus*, the same remarks apply as to the species previously mentioned, *viz.*, variation practically nil. Even of such common aberrational forms as ab. *arcuata*, ab. *icarinus*, etc., I have not seen a single example; and my old favourite *Coenonympha pamphilus*, which has previously always well repaid a thorough investigation, has entirely failed me this year, and although I have examined many hundreds during the season, I have not had to add a single specimen to my series.

Although I have given more time than usual to other families of the Lepidoptera, my knowledge of them is so rudimentary, that I will refrain from mentioning them, with the exception of the Sesiids and Anthrocerids, about which my remarks may be summed up in a few words. *Aegeria andrenaeformis* appeared to be very scarce, as far as Surrey is concerned, for I only managed to find a single boring. The larvæ of *Æ. spheciformis* were more abundant, but after finding fifteen, I only managed to breed a single male on May 19th, surely a most unusual date. All the remaining sticks contained full fed larvæ, but they had gone mouldy. Mr. A. Tonge, who accompanied me several times in search of this species, and obtained about the same number, failed to breed a single specimen, and one of the Forest keepers, who generally finds and breeds a fair number, complained of

the same occurrence. *Æ. culiciformis* and *Æ. cynipiformis* were both fairly abundant, the latter commencing to emerge in a wild state on May 18th, although at the same time there were pupæ and small larvæ. These species continued to emerge at intervals, the last appearing on July 30th. The emergence was thus spread over a period of nearly 11 weeks. Whereas *Æ. culiciformis* appears to make an almost simultaneous appearance in the wild state, and is most regular in emerging (I have always found the empty cases within a day or two of May 17th), in captivity the emergence is rather more protracted, generally spreading over a period of about a fortnight.

The Anthrocerids, which I always work thoroughly, have been very scarce in each of the several localities visited. *Anthrocera trifolii* was perhaps the most abundant, *A. hippocrepidis* entirely failed to put in an appearance, and *A. filipendulae* has been most remarkably scarce on the North Downs, for I have not noticed more than half-a-dozen imagines. The pupæ of this last were slightly more abundant, but were attacked again this year in a manner that I have not observed since 1909. I refer to the cocoons having the lower end roughly torn off and the pupa extracted, and although having given considerable time to trying to find the cause of this, I am as far from finding the solution as when I started. From all appearances it cannot be mice, as the cocoons are generally high up on a dried grass culm, and the strength of this is such that it will not stand the strain of even such a small weight as a mouse without a fracture. From experiment I found that a weight of considerably under one ounce will cause the stem to bend in such a manner that it will not subsequently recover its vertical position. For the same reason one must exonerate birds; even supposing the culm would stand the weight without breaking, one would expect to see the stem bend to the ground, and find the top of the cocoon destroyed, as being nearest to the ground, whereas it is extremely difficult to find a culm with a destroyed cocoon other than in a vertical position, and even when one is found, it can usually be traced to human agency. I should be very glad to hear if any entomologist can give a solution to a problem that has often exercised my mind.

To sum up, it appears to me that a very hot summer does not tend to produce the same amount of variation in the following summer as a wet season does. To take the last four years; the 1908 average summer produced, in 1909, an average amount of variation, not very obvious, but average working at a species would produce fair results. The 1909-10 wet and cold summer produced considerable variation in 1910 and 1911; this was especially noticeable in the latter. 1911 had a record summer as regards drought and heat, with 1912 variation practically nil. I may be premature in making this statement, but it has always been a theory which seemed probable, that variation fluctuates according to the climatic conditions to which the insects are exposed during the early part of their existence.

In conclusion I can only say that 1912 has been most disappointing so far as variation is concerned, although I have given considerable attention to my favourite species. I will give the season justice, however, by saying that perhaps I have not given entomology the full benefit of spare time at my disposal, as the scheme for preserving Colley Hill as an open space took up some of it. It has been prin-

cipally night work that has suffered, as this work was done by burning the midnight oil, the Rhopalocera would not be greatly neglected.

As the Colley Hill (perhaps better known as Reigate Hill) scheme has been warmly supported by entomologists, I may be pardoned for introducing the subject. I am pleased to be in a position to state that this favourite hunting ground of London entomologists has been secured by the National Trust for Places of Historic Interest or Natural Beauty, but unfortunately there still remains a debt of £700. Another feature of 1912 is that the same body have taken control, under the bequest of the late Mr. G. H. Verrall, of 289 acres of Wicken Fen. Owing to the heavy succession duties payable on the bequest the Trust felt some difficulty about assuming the guardianship of the property. However, through the generosity of an anonymous donor (whom one suspects to be an entomologist) they have been able to accept the gift, by means of which they will have the control of the greater part of this happy hunting ground (about 250 acres), and as it is their ambition to keep all property under their control in its natural condition, one cannot but think that the National Trust should have the good wishes, or more substantial support of all field workers. Long may Colley Hill, Wicken Fen, and the other properties of the National Trust continue to give pleasure and increase of knowledge to the fraternity of the green net.

Cosmopolitan Cockroaches.

By the late R. SHELFORD, M.A., F.Z.S., F.E.S.

It is not always an easy matter to determine the centre of origin of any given species which has spread over the greater part of the globe. If a species is found all over the world in a more or less domesticated state, but exists in a feral condition in a limited area the matter is simple enough. But the cosmopolitan cockroaches are such very domesticated insects, that throughout the entire area of their distribution they are found, for the most part, only in association with man and his works, houses, ships, factories, plantations, etc. If it should happen that any of these domesticated species exist outside the radius of man's influence in a truly feral condition in neigbouring jungle or forest, it is rather an open question whether or no the species is truly indigenous to that area. On the other hand, if the non-domesticated congeners of a domesticated species occur in a given area, let us say, the Ethiopian region, it is quite reasonable to suppose that the domesticated species originated in the same region as its feral congeners. An overwhelming abundance of a species in any given area is often strong presumptive evidence that the species is not indigenous to that area. This, at first sight may appear paradoxical, but a moment's reflection supplies the explanation; the natural enemies of the abundant species were not imported with it. The occurrence of the rabbit in Australia and of *Passer montanus* in Singapore are two cases in point, out of several others. With these preliminary remarks let us pass on to a discussion of our cosmopolitan cockroaches.

The truly cosmopolitan species are:—

Blattella germanica, L. (Sub-fam. *Pseudomopinae.*)

Periplaneta americana, L.
Periplaneta australasiae, Fab. } (Sub-fam. *Blattinae*.)
Rhyparobia maderae, Fab.
Pycnoscelus surinamensis, L. } (Sub-fam. *Panchlorinae*.)

but the following have an extremely wide distribution and will also be considered :—*

Supella supellectilium, Serv. (Sub-fam. *Pseudomopinae*.)
Neostylopyga rhombifolia, Stoll.
Blatta orientalis, L.
Periplaneta brunnea, Burm. (*truncata*, Kr.) } (Sub-fam. *Blattinae*.)
Nauphoeta cinerea, Oliv. (Sub-fam. *Panchlorinae*.)
Euthyrrhapha pacifica, Coq. (Sub-fam. *Corydiinae*.)

All of the above, with the exception of *B. orientalis*, L., are essentially tropical insects, occasionally ranging into temperate zones but unable apparently to establish themselves permanently there.

["These posthumous papers of my old friend are rough notes drafted during his long illness, in preparation of some essays on various interesting subjects in which he was eminently qualified to write. Though rough and incomplete, I cannot help thinking that these are worth publishing, as they are useful and interesting in themselves.—M. B."]

Anergates atratulus, Schenk., a British Ant, and the acceptance of a ♀ by Tetramorium caespitum, L.

By W. C. CRAWLEY, B.A., F.E.S.

On July 23rd of this year my friend Mr. Donisthorpe and I were collecting ants in the New Forest near Lyndhurst, where *Tetramorium caespitum* is abundant, when I was attracted by the large size and deep black colour of some ☿s of *Tetramorium* that were coming out of some galleries on the side of a small mound. On removing the earth covering these galleries I found numbers of a small black winged ♀ ant among the *Tetramorium*. Mr. Donisthorpe then coming up, we carefully excavated the nest, which nowhere descended more than two or three inches into the sandy soil. The colony consisted of an obese queen, 20-30 winged ♀s, and three ♂s of *Anergates atratulus*, with a fair number (several hundreds) of *Tetramorium caespitum* ☿s. The only pupæ and larvæ were those of *Anergates*, and there were, of course, no ♂s or ♀s of *Tetramorium*. I established this colony in a terra-cotta Janet nest, where it is doing well. The queen lays an enormous quantity of eggs, most of which are devoured by the ☿s, the *Anergates* queen thus being an important source of food-supply. The *Tetramorium* ☿s readily received and hatched out strange larvæ and pupæ of their own species.

This curious parasitic ant, with an apterous pupoid ♂ and no ☿ caste, now established as British, was first discovered by Schenk, at Weilburg in 1852. C. W. Dale in 1897, speaking of *T. caespitum*, mentions *Anergates atratula*, Sch., as occurring with it, and says it is

* Kirby in his *Synonymic Catalogue of the Orthoptera*, vol. i., quotes a wide distribution for *Ischnoptera rufescens*, Beauv., to which name he appends numerous synonyms. I am by no means satisfied that this synonymy can be established entirely, and until that is done the exact geographical distribution of the species remains in doubt. I therefore omit all further reference to it.

the ant standing in Curtis' guide as *Myrmica maculipes*, Curt., which was taken by his father at Charmouth in 1835 (*i.e.*, 17 years before its description by Schenk). No trace, however, of this ant can be found, this synonomy being given neither in Forel, Smith, nor Dalla Torre, and the matter therefore must be considered as very doubtful.

As the ♂ of *Anergates* is apterous and can only walk with difficulty, mating (which I have repeatedly observed) must necessarily take place inside the nest, and assume the form of adelphogamy. In my nest the ♀s removed their wings soon after copulation and made no attempt to leave the nest. In every case also each deälated ♀ seized a *Tetramorium* ☿ by the antenna, and kept hold for hours and sometimes days. In nature this would probably have occurred outside a strange nest to which the ♀ was trying to gain admission, and may have for its object the acquisition of the odour of the *Tetramorium*, or may cause the strange ☿s to drag her more readily into their nest. Neither of these explanations seems quite satisfactory however.

It is important here to emphasise the complete adoption of a newly fertilised *Anergates* ♀ as queen by a large colony of *T. caespitum* (recorded elsewhere), as it solves the problem of the elimination of the host ♀s. In this case the *Tetramorium* killed off all their own ♂s and ♀s, including two deälated ♀s, two days after accepting the *Anergates*. The latter is now distended to about half the size she should eventually reach. I am inclined to think that a similar slaughter takes place in colonies with queens of *Lasius niger* and *L. alienus*, after the acceptance of the parasitic ♀s of *Lasius umbratus* and *L. mixtus*. Mr. Donisthorpe has repeatedly expressed his opinion that *Anergates* would be found in Britain, and last year we actually made a special visit to Whitsand Bay, where *Tetramorium* abounds, in the hope of discovering it. Our search, however, was very much hampered by the extreme drought, which caused the ants to retire deep into the earth.

The ♂ of the British *Anergates* possesses no strigil, and therefore corresponds to the form found in Holland rather than to that found further south. The ♀, one of which I sent to Forel, is the typical *A. atratulus*.

NOTES ON COLLECTING, Etc.

Collecting Notes 1912.—I had the pleasure of taking *Phoxopteryx upupana* in a wood near here on May 19th, after having worked for it for some years. At Hailsham, on June 6th, at the entrance to a wood where *Bunium flexuosum* (the common earth-nut now known as *Conopodium denudatum*.—H. J. T.) is the the commonest flowering plant, *Odezia atrata* was plentiful. *Adscita statices*, too, in lovely condition, was found in an open space in the same wood. The specimens netted included the blue-green type form. I visited Hindhead Common on June 10th, a very unfavourable day, and found it difficult to get anything to fly. The only moth at all interesting to me was *Phoxopteryx* (*Anchylopera*) *myrtillana* one or two examples of which I knocked out of the *Vaccinium*. I was at Lyndhurst for a few days in the middle of June but had a disappointing time. *Rhyaciona* (*Retinia*) *pinivorana*, and *Coleophora ahenella*, as also larvæ of *Sarrothripa undulanus* (*revayana*) occurred. There was very little butterfly life. I did see

and take one male *Dryas paphia* on June 16th—a rather early date. *Pararge aegeria* was not uncommon, and a few *Brenthis selene* and *Plebeius argus* were also observed. At Halling, on July 13th, I found *Phoxopteryx comptana* abundant, *Coleophora onosmella*, *C. niveicostella*, *Elachista magnificella*, and *Ilithyia semirubella*. At the same place on July 21st I found *Gelechia sequax*, *Peronea aspersana*, in plenty, *Odontia dentalis* and *Sericoris rivulana* (*conchana*). *Sesia* (*Macroglossa*) *stellatarum* was at flowers of Viper's Bugloss, but was off like a flash, and *Colias edusa* was seen but was too wary to allow of my getting within striking distance. An unexpected visitor in the shape of *Dioryctria abietella* turned up here (Southend) at our electric light on July 17th. Just now I am getting a few larvæ of *Tortrix pronubana* and of *Coriscium cuculipennellum* on privet in this neighbourhood.—F. G. WHITTLE, 7, Marine Avenue, Southend. *August 14th.*

NOTES FROM THE BROADS, 1912.—I spent from July 22nd to 27th near Stalham, Norfolk, and had very fair weather and sport. This was my third visit in successive seasons to the same place, and I succeeded this year in timing my visit so as to get *Leucania brevilinea* in good condition, they were, however, not so common as last year. I also took three *Lithosia* (*Pelosia*) *muscerda* round the same small clump of sallows, alders, etc., that has produced it each year; this must be a very retiring and local insect, or else it is that I do not work for it in the right way, but my record "bag" for one evening is two! Other captures included *Agrotis obelisca* and *A. nigricans* at honeydew on sallow leaves, also *Apamea* (*Helotropha*) *leucostigma*, while *Coenobia rufa*, *Calamia phragmitidis*, *Nudaria senex*, *Lithosia griseola* with the var. *flava* (*stramineola*), *Epione apiciaria* and *Acidalia immutata* were common at dusk. *Leucania straminea* seemed to be over, only a few worn females being noted, and the same remark applies to *Hydrelia uncula* and *Senta maritima*. I took, however, one very fair ab. *bipunctata* of the latter species. I rather regret that I did not try sugar, but it would have meant applying it to reeds, leaves, etc., which is a messy job, and often a failure. My plan was to row out in the evening to a spot on Stalham Dyke sacred to *muscerda* and *brevilinea*, work there till 9.30 or so, and then return and try light on the balcony of the cottage, which overlooks a fine expanse of marsh-land. The results of this illumination were most disappointing, though we had several supposedly perfect nights. The best of the insects that did come were one *Eutricha quercifolia*, one *Apamea ophiogramma*, and a few *Phragmatobia fuliginosa*, while *L. griseola*, *L. lurideola*, and common *Geometrae* like *Pelurga comitata*, *Abraxas grossulariata*, etc., were only fairly numerous. A few worn *Eupithecia subnotata* also came. Carrying the sheet (on poles), lamps, etc., with much labour out to the afore-mentioned spot at Stalham Dyke was attended by no greater success. A few ♂ "drinkers" and one *L. brevilinea* being all that turned up by 11.30 p.m. on the night I tried it. By day I found larvæ of *Papilio machaon* in abundance, locally, of all sizes from full-fed downwards, and a few of the largest are now spinning up in my cages. Larvæ of *Nonagria cannae* and *N. typhae* were also common, with a few pupæ of the same species. With regard to *N. cannae* the authorities generally mention the two species of *Typha* as the chief foodplant, in fact Newman and Barrett mention *Typha* alone, but my experience has been that it generally inhabits *Scirpus*

lacustris, the only other plant in which I have found it being *Sparganium ramosum*, while I have never found anything but *N. typhae* in stems of *Typha*. In any case I can strongly recommend the *Scirpus* to anyone working for *cannae*, and when working for it to cut the stems as low as possible under water, especially if the weather is hot, as the larvæ often go down far below the waterline, almost to the roots of the reed. Until I discovered this habit I used to cut just on the waterline, where I saw holes, and must have missed many larvæ.—(Capt.) C. A. Cardew, 50, Melbury Gardens, Wimbledon. *August 6th.*

SCIENTIFIC NOTES AND OBSERVATIONS.

Euchloë cardamines ovipositing on Capsella bursa-pastoris.—When near Hailsham, in the middle of May last, I noticed the very fine condition of many plants of the common weed, Shepherd's Purse. Many of them were over a foot high and free from the usual road dust. *Euchloë cardamines* was abundant, and I was surprised one morning to see a female butterfly walking over a Shepherd's Purse and laying her eggs on a plant growing just at my feet. My brother, H. Leonard Sich, already had larvæ on the same species of plant and when, in one of the lanes, we gathered a fresh supply, he found eggs had also been laid on the pieces he had gathered. Most of the eggs I have previously found were deposited on *Alliaria officinalis*, and I never remember reading of *C. bursa-pastoris* as a food-plant of *E. cardamines*.—Alfred Sich, (F.E.S.), Chiswick. *August 27th*, 1912.

CURRENT NOTES AND SHORT NOTICES.

The final portion of the Collection of the late J. W. Tutt will be sold at Steven's sale rooms, 38, King Street, Covent Garden, on September 24th, 1912. It comprises the sections which were undergoing re-arrangement at the time of Mr. Tutt's death. The whole of the Sphingids, the Bombyces, the *Nolidae* and the Anthrocerids had been largely arranged in accordance with the text of "British Lepidoptera." There are also long series of many Continental species of the *Lithosiidae*, *Anthroceridae*, *Pterophoridae*, etc.

The Editorial Staff of our Magazine seem to have been well to the fore at the International Congress at Oxford. Dr. Burr was General Secretary to the Congress. Messrs. Bagnall, Bethune-Baker, J. E. Collin and G. Wheeler acted as Secretaries to some of the sectional meetings. Mr. Bagnall, Dr. Chapman, Mr. Donisthorpe and Rev. G. Wheeler read papers. Mr. Bethune-Baker introduced the Resolution on Nomenclature, on behalf of the Entomological Society of London, and Mr. Sich took part in the discussions.

Volume II. of the *Transactions of the Carlisle Natural History Society* has just come to hand, and we are pleased to see that what was said in the notice of the previous volume can be repeated, *viz.*, "That the Carlisle Natural History Society is to be congratulated on the issue . . . . and deserves praise not only for the excellence of the contents, but for the first-class style and get-up of the part as a whole, the printing being exceptionally well done." The contents of the present volume are comprised in 256 pages, of which 146 pages are devoted to (1) The Lepidoptera of Cumberland, Part II. (Moths),

by our old friend Geo. B. Routledge, F.E.S., and (2) The Coleoptera of Cumberland, Part II., by our old correspondent, Frank H. Day, F.E.S. Both these contributions are continuations of what was begun in the previous volume in 1909, and comprise not only the results of many years' personal work, but a summary of all records hitherto published, as well as many items of general biological interest. Mr. H. Britten, F.E.S., contributes an article on the "Spiders of Cumberland," and T. S. Johnstone one on "Plant Life around Carlisle," while a very sympathetic memoir of the late Rev. H. A. Macpherson, M.B.O.U., who by his enthusiasm for Natural History helped to place this Society in the forefront of local organisations, is added by Linnæus E. Hope.

We hear that our old contributor, T. Bainbrigge-Fletcher, who for some time has been Officiating Imperial Entomologist at Pusa, under the Agricultural Department of India, in place of Professor H. Maxwell-Lefroy, who has been away on leave, has recently been transferred to Coimbatore as Entomologist to the Government of Madras, and Professor of Entomology in the Agricultural College and Research Institute.

We also hear that Professor Maxwell-Lefroy has been offered and has accepted a post of Professor of Entomology in England, and will be leaving India at the end of the present year. This will presumably mean a return of Professor Bainbrigge-Fletcher, to Pusa, as Imperial Entomologist, a post to which his conspicuous ability and experience recommend him.

Many insects, which we in this country look upon with much tolerance and which only at intervals are inimical to our agriculturists, when transferred to other climes where their struggle for existence is an easy one and where the balance is strongly in their favour, become a very serious item for economical consideration. Of such are *Pieris brassicae*, *Galleria mellonella* and *Calandra oryzae*. All these three British insects find a congenial clime in India and multiply apace to such an extent as often to be a serious menace to the crops of the needy native agriculturists. The authorities of the government of India have long tried to cope with the insect trouble, and numerous colleges and experimental stations have been established, with the object of disseminating knowledge of the life-histories of the various pests, and to suggest adequate means of attacking these minute enemies at the most vulnerable period of their existence. We have just received some half a dozen pamphlets from the pen of Professor Bainbrigge-Fletcher, reprinted from the Agricultural Journal of India. (1) "The Cabbage-white Butterfly (*Pieris brassicae*)," (2) "The Wax-moth (*Galleria mellonella*)" and (3) "The Rice Weevil (*Callandra oryzae*)" treat of these three insects in detail as to their life-history and give various methods of dealing with them in bulk. The pamphlets are illustrated by very well executed coloured plates. Two other pamphlets deal with (1) "The Moth-borer (*Chilo simplex*)," one of the smaller moths, the larvæ of which bore into the living stems of the sugar-cane, maize, etc., and often cause enormous damage; (2) "The Cane and Rice Grasshopper (*Hieroglyphus banian*)," which in its young stage feeds on the tender shoots of the young growth of millet, sugar-cane, rice, etc.; and (3) "The Potato-moth [*Pthorimaea* (*Lita*) *operculella* (*solanella*)]," which appears to be a recent arrival in India, although only too well

known in America, some parts of Europe, and Australia. The contents of all these publications intimate, that it is now well recognised, that only by a thorough detailed knowledge of the life-history of the pests is it at all possible to work out adequate methods of dealing with and controlling their depredations with a minimum of loss of the crops concerned.

In the *Bulletin of the State University of Iowa* is an account of "Some Recent Collections of Fossil Coleoptera from the Miocene Shales of Florissant," by H. F. Wickham. The district of Florissant is quite a historic locality for the discovery of so many examples of the invertebrates of an earlier age. Professor T. D. A. Cockerell, who long ago was an active member in the South London Entomological and Natural History Society, has during the past five or six years organised parties of exploration for the express purpose of getting fresh material. These efforts have been so far successful that this preliminary report has been written describing and figuring a number of new forms, and an intimation is given that the United States Museum have in hand a detailed and comprehensive report upon the whole of the coleopterous material from the Florissant area in their collections.

In the last part of the *Verhandlungen der k.k. zoo. bot. Gesell. in Wien*, in the report of the meeting on January 12th, Dr. Rebel describes a new species of *Coleophora*, *C. meridionella*. The new species comes nearer *C. troglodytella*, and was bred from cases found in Dalmatia, 1893, and near Riva in 1911. Subsequently Dr. Rebel has detected several in the "Mann" collection in the Hofmuseum under the name *therinella*, Tengstr.

SOCIETIES.

THE ENTOMOLOGICAL SOCIETY OF LONDON.—*May 1st*, 1912.—The Rev. E. Adrian Woodruffe-Peacock, F.L.S., F.G.S., Cadney Vicarage, Brigg, Lincolnshire, was elected a Fellow of the Society.—ABERRATIONS IN AGLAIS URTICAE, VAR. ICHNUSA.—Mr. A. H. Jones exhibited three examples of *Aglais urticae*, var. *ichnusa*, showing the absence of scales in the centre of the wings, where the central spots are present in the type. VARIATION IN EUCHLOË DAMONE.—Mr. Jones also exhibited examples of *Euchloë damone*, from Asia Minor and Sicily, showing difference in the depth of colour of the transverse black streak on forewings, and in the tone of colour of undersides. A VERY SCARCE EGYPTIAN PIERID.—Dr. G. B. Longstaff exhibited a series of twelve specimens (five males and seven females) of the rare white butterfly, *Pinacopteryx doxo*. SCARCE COLEOPHORIDS.—Mr. Alfred Sich exhibited two specimens, with their cases, of *Coleophora trigeminella*, Fuchs, and one specimen of *C. badiipennella*, Dup., with its case for comparison. BRAZILIAN ITHOMIINES.—Mr. W. J. Kaye exhibited three small groups of Ithomiine butterflies that had been taken by himself in S. Brazil. NEW MIMACRÆAS.—Mr. Hamilton H. Druce exhibited ♂ and ♀ of the new *Mimacraea eltringhami*, captured by Mr. S. A. Neave in the Bugoma Forest, Unyoro, Uganda, and another new *Mimacraea* which he proposed to name *costleyi*, after its discoverer Mr. Costley White at Mlanji, Nyassaland, which appeared to be allied to *M. marshalli*, Trimen, a specimen of which was also shown for comparison. Mr. S.

A. Neave described the capture of these specimens. This species in common with several others flies very high, and he said it was often necessary to employ small native boys perched at the tops of the trees and armed with nets. BUTTERFLIES FROM BRITISH HONDURAS AND GUATEMALA.—Mr. A. E. Gibbs exhibited a drawer of butterflies from these localities recently received from Dr. Davis, of Belize. A SCARCE PLECOPTERON.—Mr. G. T. Porritt exhibited specimens of *Nemoura dubitans*, Morton, taken by Colonel Nurse at West Stow, Suffolk, in June last, and for comparison specimens of *Nemoura inconspicua*, Pict., from Aviemore. LIFE HISTORY OF NONAGRIA NEXA.—Mr. H. M. EDELSTEN, exhibited stems of *Carex riparia* (received from the Hon. N. C. Rothschild from Berlin) to illustrate the life history of *Nonagria nexa*, Hb. A SCARCE THRIPS.—Mr. C. B. Williams exhibited a specimen of the male *Megalothrips nobilis*, Bagnall, from Wicken Fen, taken April 11th, 1912. This is the largest European species and, since first taken by Dr. Sharp in 1894, has not been recorded. EAST AFRICAN TABANIDÆ, WITH MANY HITHERTO UNKNOWN MALES.—Mr. S. A. Neave exhibited some of the *Tabanidae* collected during his recent tour in East Africa, on behalf of the Entomological Research Committee of the Colonial Office. He called attention to the male individuals exhibited, and expressed the opinion that their rarity in collections was perhaps due to the fact that they were short-lived. Mr. G. A. K. Marshall observed that probably many of the Fellows present would hardly realise the importance of Mr. Neave's exhibit. Even amongst the English *Tabanidae* by no means all the males were known, and this sex was hitherto unknown in the large majority of the species then exhibited. A CLUSTER OF OVA OF GONEPTERYX RHAMNI.—Mr. R. M. Prideaux brought for exhibition seventeen ova of *G. rhamni* found at Brasted Chart, on April 28th, on a shoot of *Rhamnus frangula*. MIMICRY IN THE TROPICS CHIEFLY CHARACTERISTIC OF FOREST AREAS.—Professor Poulton said that he had long been struck, especially in the collections of butterflies received from Uganda and British East Africa, with the immense development of mimicry in Lepidoptera from the forest as compared with the open country. He read notes bearing on this point from Messrs. C. A. Wiggins, F. J. Jackson and C. F. M. Swynnerton. Mr. S. A. Neave said that he had recently had an interesting experience of insectivorous birds, near Entebbe. On January 12th, 1912, at Gabunga's, near Entebbe, he had watched a wagtail, most probably *Motacilla capensis*, catching butterflies on a small patch of damp sand in the bed of a forest stream. The bird was so tame that he stood within 3 or 4 yards of it. In less than half-an-hour this bird captured and ate 19 butterflies and failed to catch many others. The butterflies eaten were nearly all small *Lycaenidae*. THE POWER OF SIGHT IN BIRDS.—Professor Poulton called attention to a few observations which supported the conclusion that birds possessed the extraordinarily acute and far-reaching vision required by the Batesian and Müllerian theories of Mimicry. The following Paper was read :—"On the Colour Groups of the Hawaiian Wasps," by Dr. R. C. L. Perkins, M.A., D.Sc., F.Z.S., F.E.S. In illustration of the paper, Prof. Poulton exhibited the specimens referred to by Dr. Perkins. The Colour-groups were arranged in order of the islands, from Kauai in the N.W. to Hawaii in the S.E.—*June 5th*, 1912.—Mr. Henry Francis Carter, Liverpool School of Tropical Medicine, University of Liverpool, was elected a Fellow of the

Society. The Rev. G. Wheeler read the Report of the Committee on Nomenclature, which was adopted (see p. 206). A SCARCE DIPTERON.—Mr. J. E. Collin exhibited a series of thirteen specimens of *Physocephala nigra*, De G., the largest British species of the *Conopidae*, caught on Studland Heath (Dorsetshire), during the last week in May, when Colonel Yerbury, Mr. C. J. Wainwright and himself took 24 specimens; though widely distributed, the species was always considered a great rarity, and its occurrence in such numbers had never before been recorded. A NEW HYDROECIA.—Dr. T. A. Chapman exhibited a specimen of *Hydroecia burrowsi*, Chpn., a new species that has turned up (from Vladivostock) since Mr. Burrows's paper on the group. A BRED ALBULINA PHERETES.—Dr. Chapman also showed a specimen of *Albulina pheretes*, ♀, bred at Reigate from the egg, supposed to be the first (and only) bred specimen of the species. TWO UNCOMMON SUDANESE BUTTERFLIES.—Dr. G. B. Longstaff exhibited *Calopieris eulimene* and *Teracolus pleione*, and read notes upon them. EAST AFRICAN ASILIDS AND RHOPALOCERA.—Mr. S. A. Neave exhibited some specimens of the Asilid genus *Hyperechia*, representing three, perhaps four, species, all taken during his recent tour in East Africa. He also showed for comparison four common species of *Xylocopa*, bees to which the flies bore a marked superficial resemblance. He also exhibited a remarkable new Nymphaline butterfly, probably belonging to the genus *Pseudacraea*, taken on Mt. Mlanji, Nyassaland. He pointed out that it bore a marvellous superficial resemblance to *Amauris lobengula* var. *whytei*, Butler, the Danaine which occurred in the same place. He further exhibited a number of unnamed *Lycaenidae*, principally from Uganda. PIERIS NAPI AND VAR. BRYONIAE.—Mr. H. Main exhibited series of *P. napi* and var. *bryoniae*, and pointed out that the latter, reared from ova sent both from Lapland and Switzerland, had produced a partial second brood. COLEOPTEROUS LARVÆ.—Mr. K. G. Blair exhibited larvæ of *Cebrio* sp. (? *gigas*) from Sicily, received from Mr. J. P. Barrett. HEREDITY IN THE FEMALE FORMS OF HYPOLIMNAS MISIPPUS.—Prof. Poulton exhibited females of two families, reared in 1911, from female parents of the type form, by Rev. K. St. Aubyn Rogers, M.A., F.E.S., which confirmed the conclusions drawn from his earlier work, that *misippus* was dominant and *inaria* recessive. THE TSETSE-FLY GLOSSINA CALIGINEA, AUSTEN, REJECTED BY A MONKEY.—Prof. Poulton exhibited the fragments of a *Glossina* identified by Mr. E. E. Austen as a female of *G. caliginea*, Aust. The specimen had been bitten and rejected by a monkey. FAMILIES OF BUTTERFLIES BRED BY MR. W. A. LAMBORN IN THE LAGOS DISTRICT.—Prof. Poulton exhibited several of these families, and referred to the strong light which was thrown by them upon different biological problems. THE IRRITATING HAIRS OF THE MOTH ANAPHE INFRACTA, WALSINGHAM.—Prof. Poulton exhibited a specimen of the Eupterotid, or, as Aurivillius considers, the Notodontid moth *Anaphe infracta*, concerning which Mr. W. A. Lamborn had written from Oni Camp, April 22nd, 1912:—"The moths undoubtedly possess urticating hairs. The female (monkey) Mona was allowed to steal one. She smelt it, rubbed off the hairs and scales, then dropped it, and in a few minutes was rubbing all four feet on the ground. I made some sympathising remarks with the result that she suddenly sprang on to my bare neck, and I have been troubled with skin irritation all the evening." Prof. Poulton said that Mr. A. H.

Hamm had found hairs from the anal tuft of the exhibited specimen produced irritation on his hands and face. Mr. Eltringham had found that the hairs of the female, but not of the male tuft, were covered with minute excessively fine spicule-like teeth. THE COCOONS OF THE AFRICAN LASIOCAMPID MOTH CHRYSOPSYCHE VARIA, WALK.—Prof. Poulton exhibited the imagines and cocoons of *C. varia* sent to him by Dr. G. D. H. Carpenter from Damba Island, 20 miles south-east of Entebbe. The larval skin was still projecting from some of the cocoons and showing its blue spots. Dr. T. A. Chapman remarked that the hairs covering the eggs of *Porthetria dispar* are also urticating. He also observed that there are other species of moths which extrude the larval skin, but in these cases it was from flimsy cocoons. THE WARNING COLOURS OF THE HYPSID MOTH "CALLIORATIS" PACTOLICUS, BUTL., IN ALL ITS STAGES.—Prof. Poulton exhibited the larvæ, pupæ, and imagines of *pactolicus*, sent by Dr. G. D. H. Carpenter. The two black-and-white-ringed larvæ and the two orange-black-marked pupæ had been collected on April 17th, 1912, by Dr. Carpenter on the shore of Bugalla, Sesse Islands; the 32 imagines had been bred (June 1st, 1911) from scattered larvæ found on Damba Island. PSEUDACRÆAS OF THE HOBLEYI GROUP ON THE SESSE ISLANDS IN THE VICTORIA NYANZA. —Prof. Poulton said that Dr. G. D. H. Carpenter had left Damba in December, 1911, and had gone in January to Bugalla Island in the Sesse Archipelago, and had found there representatives of all the *Planema-Pseudacraea* associations. The disproportion between *Planema* and *Pseudacraea* is even greater there, so much so that Sesse confirms the Damba records, the results being still more striking. The following papers were read:—"Studies in the *Blattidae*," by R. Shelford, M.A., F.E.S.; "*Polyommatus alexius*, Freyer, a good Species," by T. A. Chapman, M.D., F.Z.S., F.E.S.

REVIEWS AND NOTICES OF BOOKS.

A MONOGRAPH OF THE AFRICAN SPECIES OF THE GENUS ACRÆA, BY HARRY ELTRINGHAM, M.A., F.Z.S. (TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON, PART I., WITH SIXTEEN PLATES).—How different is the description of a genus now in comparison with that thought necessary a hundred years ago. The description of *Acraea* given by Fabricius in 1807 is "Taster zwei, lang, gefranzt, dreiliedig; drittes Glied klein, nackt. Fühler geknopft (Putzfüsse)." To-day the description occupies a page and a half without detailing the neuration, a figure being given of this instead. The whole monograph shows what we should expect from a former student at the Hope Museum, a research into detail, an accuracy of observation coupled with the power of the application of the knowledge thus gained that brings the author into the front rank of systematists.

It is most interesting to learn that the male armature of *Acraea igati* from Madagascar resembles that of the Australian *A. andromache* rather than that of its own allies; whilst it is equally curious to find that the armature of *A. mirifica* has a closer superficial resemblance to that characteristic of the South American genus *Actinote* than that of its African neighbours.

Again the author brings out the fact that it was the able explorer S. A. Neave, who discovered that *crystallina* described originally as a

♂, is the ♀ of *A. chilo*—showing what excellent use the field naturalist makes of his trained eye, when he comes to work in the Museum.

Many of the species of the genus show extreme variability, and it is a pleasure to note the careful judgment shown in dealing with such species. We are accustomed to consider all *Acraeae* as unpalatable in all their stages, but the author records that some of their larvæ are subject to attacks from Dipterous parasites in spite of that fact. In dealing with the species *A. acrita* the author draws attention to the variability of the genital armature. This is exceedingly interesting and helps to confirm his view that it is "on the verge of becoming divided into several different species." The fact that the armature is highly complicated, as stated, no doubt opens the door to slight modifications, but at the same time proves that the species is going through a critical period in its evolution, especially when we consider its very numerous forms and geographical races. We understand that the whole of the genital preparations and all the coloured figures, many of which we have had the pleasure of examining, are the work of Mr. Eltringham's own hands. The beauty of the preparations and the equal beauty of the drawings, both prove the author to be as able a microscopist as he is an artist, a combination by no means always met with. We admit a feeling of relief and satisfaction that the genus *Acraea* has not been split up into sub-genera, for reading between the lines we are inclined to imagine that a temptation was laid in the way to induce this action, and we congratulate the author that he resisted it. When a large group like this falls entirely naturally into one genus, so that even a "tyro" can recognise it at a glance, it is worse than waste of time to sub-divide it into colour sections or otherwise, simply for the sake of reducing the size of the genus, and we are glad that this was not done. We are equally relieved at another point made. It is stated under the species *A. servona*, that "the naming of forms on the variation of black spots is carrying nomenclature to excess." We heartily agree with this sentiment and would like to underscore it many times, but, as it is, a large number of forms and variations have been named by the author, and if he had acted contrary to the paragraph just quoted the monograph would certainly have been half as large again and might have been perhaps discounted in its value in proportion.

The list of types with their location, the bibliography and the index of specific names, all add to the value of the work from the point of view of the systematist.

The chromo-lithography of the plates is careful and good, though it by no means brings out the delicacy of touch and colour of the artist's original figures; we are glad to have drawings of some closely allied species, and especially are we pleased to see a good figure of *doubledayi* about which there has been much uncertainty, but we should have liked to have seen *oncaea* beside it for comparison. The figures of the genital armature are models of clearness, and if mere definition of outline and shape are the points aimed at, are certainly better than photography, though, for other reasons, we prefer the latter. Mr. Lamborn's figures of the larvæ of certain species are a welcome addition to our knowledge of the early stages of the group, and we look for much more from that accurate and gifted observer.

In conclusion we cannot do otherwise than warmly congratulate the author for his valuable and most painstaking work, and also the Entomological Society for the publication of it, the value of this year's transactions will be much enhanced by Mr. Eltringham's able monograph.—G.T.B.-B.

A Correction.—My friend, Mr. A. H. Jones, has pointed out a little mistake in my paper "Ten days in the Cevennes," *ante* pp. 117-121. I there speak of *Hirsutina dolus*. I should have said *Hirsutina dolus* var. *vittata*. The type form *dolus* does not apparently obtain there, all our captures were of the form *vittata*.

I might also here explain that I use the generic name *Hirsutina* only to conform to the general usage of our magazine. I cannot accept for myself this and other names created in recent years for this group of butterflies, but until I have brought out my generic revision of the *Lycaenidae* I am content to fall in line with our assiduous editorial secretary.—G. T. Bethune-Baker.

OBITUARY.

Edward Arthur Fitch.

In the early volumes of the "*Entomologist*," from about 1874, one of the most oft recurring names of contributors to its pages is that of Edward Arthur Fitch. Born in Chelsea, in 1854, he passed through his school days with considerable honour and success, and in 1874 took up his residence at the Brick House, Maldon, where he lived until his death on June 28th last. His life from beginning to end was a strenuous one, and his interests varied and engrossing. To whatever he put his hand to that he gave his earnest energy, whether it was to his business as a farmer, to local affairs either of his town or his county, to the study of nature, or to Archæology. His keen intellect, his fluency of speech, his love of fair-play, made him honoured and respected by all, even by those opposed to him in thought and politics. His aid was a *sine quâ non* in aught that was done in the county as well as in the town of his adoption. He was a Fellow of the Entomological Society, since 1874, served on the Council and was Secretary from 1881-5; a Fellow of the Linnean Society; a Fellow of the Zoological Society; one of the founders of the Essex Field Club, and on the Council of the Essex Archæological Society. Six times he was Mayor of Maldon, he was an original member of the Essex County Council and one of its Aldermen, and for 20 years he served on the Board of Guardians as Chairman and Vice-chairman. A keen politician, he prided himself on doing naught to create strife and ill-feeling among those who thought other than he did. In 1902 his ability as a linguist helped him much in leading a party of some 50 Essex farmers to Hungary to study agricultural methods in that country.

During the last quarter of a century he had done but little active entomology, although his love for the study led him to aid societies and individuals whenever opportunity was afforded him. The pioneer work which he did in "other orders" than Lepidoptera and Coleoptera, from the beginning of his entomological work, will be a lasting memorial.

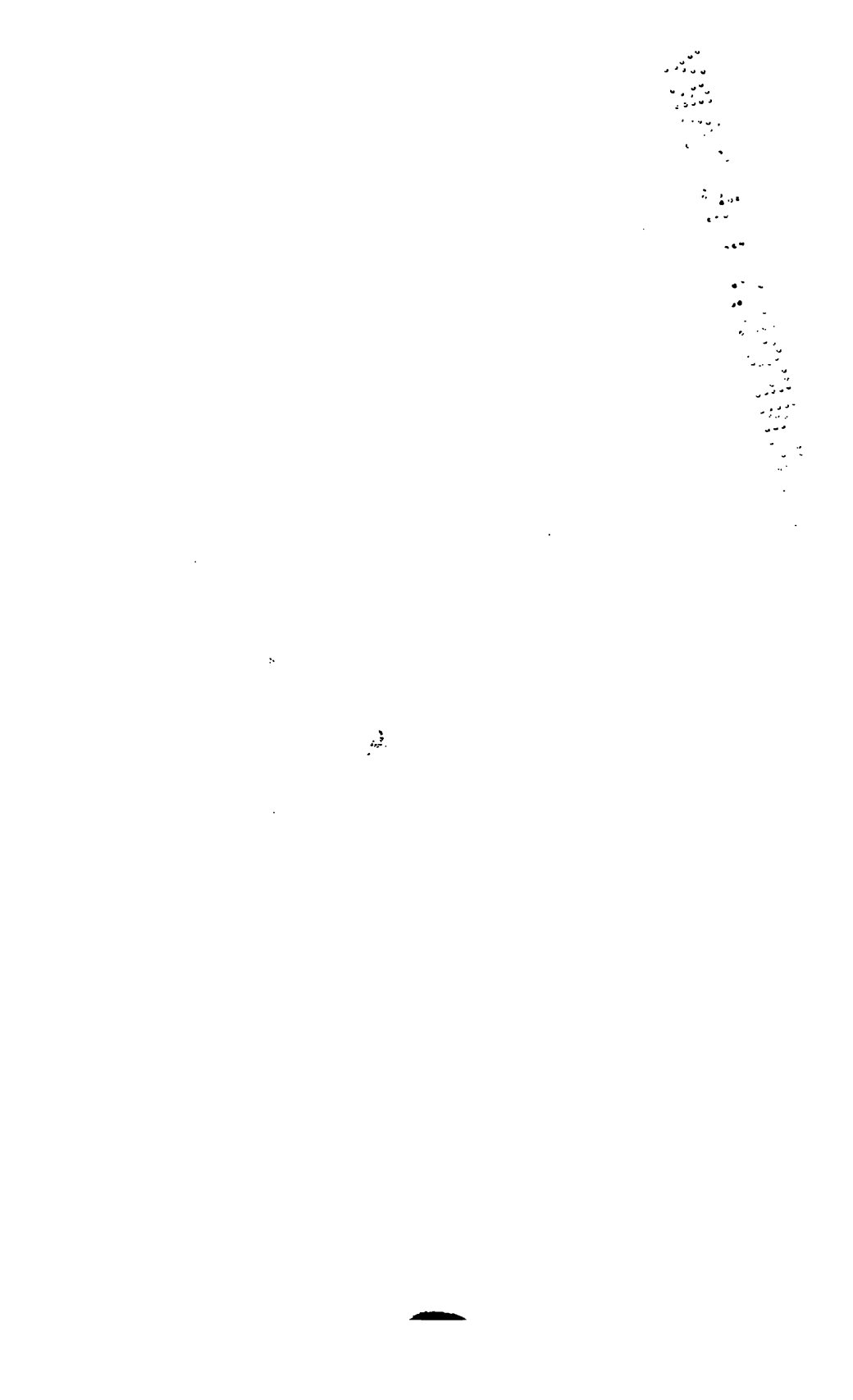




Photo. L. Tatchell.

GYNANDROMORPHOUS AMORPHA POPULI, L., BRED BY LEONARD TATCHELL.

A Gynandromorphous Specimen of Amorpha populi, L. (*with plate*).

By W. PARKINSON CURTIS, F.E.S.

An interesting gynandromorphous specimen of *Amorpha populi* has been handed to me by Mr. Leonard Tatchell of Bournemouth, with a request that I would note its principal features. Unfortunately the line was drawn at making a preparation of the abdomen, which would no doubt display many interesting characters. At first glance the most noticeable peculiarity of the insect is the dissimilarity in shape and colour of the respective parameres of the fore-wings. Besides, the female side looks smaller than the male side, though measurements prove this to be an optical illusion. The right male paramere is ample, and hence appears larger than the left; it is of normal coloration (if such there be in the species!) The left female paramere is flushed all over with a rosy pink (being near ab. *mirabile*, Aust.), and the margins are strongly crenulate. The development of the markings is not materially different on either side of the median line, but the pre-marginal suffusion in the left female hindwing is obsolescent, and the rufous tornal patch is more restricted and of a yellower shade of terra-cotta (unless my eye deceives me, but owing to the pinkness of the surrounding area it is a little difficult to judge accurately the exact line). The most interesting feature is undoubtedly the exactness with which the characters are arranged on either side of the median line. The entire left of the thorax and abdomen being pinkish and the right grey, the pink only trespassing on to the grey side at the 4th, 5th and 6th segmental divisions. This peculiarity is equally marked above and below, and so far as one can see from the exterior, the genitalia are in the same interesting condition. The antennæ, palpi, and legs retain their diverse sexual characters precisely. The posterior right male leg has the tarsi missing, and apparently this is not the result of an accident after emergence. The length of the male costal margin of the forewing is 28mm. and of the female 30mm. The specimen is one of a partial second-brood bred by Mr. Tatchell from larvæ collected at Swanage, and like most second-brood *Sphingidæ* undersized.

Aberrational Names.

By Rev. GEORGE WHEELER, M.A., F.Z.S., F.E.S.

The June number of the *Ent. Record* contained some observations on aberrational names, introduced incidentally in a paper by Col. Manders, to which, (especially since they seem to echo certain semi-official editorial outcries), a reply seems to be needed. With regard to Collectors (with a big C) there is not the slightest need for them to overload their minds or their cabinets with a number of aberrational names in which they take no interest, and for them it still appears to me, as I said some time back in the pages of the *Entomologist*, that the best plan is to take the names of extreme aberrational forms only, and to call intermediate specimens "trans. to ab." so-&-so. But Col. Manders is not so much a collector (even with a small c), as a Scientist (with a big S), and a Biologist (with a big B), and it is to the scientific student of Variation and to the biologist that these names are of value; they serve to register minute differences, and "these minute differences will sometimes

serve (as I have lately been pleading before the International Congress) to show the directions of variation in a species, and those variations occasionally point out quite unexpected affinities"; it is useless to name some and intentionally leave out others, for we may omit just those that will eventually prove to be of scientific value. Hundreds will be lost, probably thousands will only occasionally recur, it may not be one in a thousand that will eventually prevail, but this makes it all the more important to register such variation as has actually taken place, as helping to define the range within which variation in a species is possible and the directions in which new species may (because it has been shown that they *might*) eventually rise. Unless they are in some way registered, the facts themselves will certainly pass into oblivion, and a name is the simplest and easiest form of registration. That the naming of aberrations might be much simplified and put on a far sounder basis I readily admit, and I have suggested that a name once given to a certain form of aberration should be applied automatically to the same form of variation occurring in other (or at least in related) species.

But Col. Manders had in store a much greater surprise even than an onslaught (coming from such a quarter) on aberrational names, and that is his failure to grasp the great interest and importance of the particular example which he has chosen to hold up to ridicule. Every one of his first seven "abs." of *Teracolus limbatus* not only *might* but *ought* to be named. (Not that abs. 8 and 9 are unimportant, but they could only be dealt with in a work containing microscopical research, and it would be time enough to name them, if frequently referred to, when used in such a work.) It is almost impossible to over-estimate the phylogenetic importance of these colour-changes; and as to ab. 1: —Is this absence of the spot the original form? Has the spot been acquired? Has it been lost? Are lost characters liable to re-appear? What is the condition in this respect of the most nearly related species? etc. Every reader of the *Transactions of the Entomological Society* knows that Col. Manders has not only a scientific but an unusually judicial mind, and I am more than ready to admit that on any scientific question whatever he could "give me points and beat me hollow;" so I shall be not only satisfied but proud if I can, like the mouse in the fable, nibble through some of the knots in the net of prejudice by which in this matter he seems to have become entangled, so that he may be free to pursue scientific investigations on the very data which have seemed to him not only useless but ridiculous.

Some Captures in Norfolk, with special reference to Lithostege griseata.

By the Rev. C. THORNEWILL, M.A.

Some years ago I spent about ten days during June at Thetford, and came away very much struck with the possibilities of the district from an entomological point of view. It was a good season, and I had generally the assistance of my son, who was then living there; and during those ten days I succeeded in taking specimens of several good local insects—some of them in considerable numbers—*viz.*, *Dianthoecia irregularis*, *Agrophila trabealis* (*sulphuralis*), *Acontia luctuosa*, *Acidalia rubiginata* (*rubricata*), *Lithostege griseata*, and *Spilodes*

sticticalis—not to speak of other less coveted species. I promptly made up my mind, if the opportunity should occur, to visit the neighbourhood again; and this intention was carried out during the present year, when I spent a period of five weeks, from May 14th to June 20th, in a locality about half-way between Thetford and Ely. I may say at once that—owing partly to the circumstance that I was a little too early—I was not nearly so successful as on my previous visit. In fact, several of the species I have mentioned above never turned up at all; of *A. rubiginata* (*rubricata*) I took only one specimen, though that was certainly a very fine one; and of *A. trabealis* (*sulphuralis*), of which I had before obtained as many as I cared to take, not a solitary specimen was to be seen, though I made several journeys to both Thetford and Brandon in search of it. My attention, however, was mainly devoted to *L. griseata*, of which I obtained 13 specimens, nearly all being in first-rate condition; and about this species I should like to speak more particularly, as it seems not to be generally known, and my observations as to its habits do not entirely coincide with the information given in the books. I found myself seriously hindered at the outset by my want of acquaintance with the food-plant of the insect, *Sisymbrium sophia*, a plant belonging to the order *Cruciferae*, the English name of which is "Flixweed," though it is locally known by the title of "Tarrify" or "Terrify." This plant grows chiefly among the corn, which is largely grown in the neighbourhood, and it possesses a number of long sharp-pointed seed-vessels, which are apt to penetrate into the arms of the reapers as they cut the corn, and unless promptly taken out frequently lead to inflammation, so that the name "Tarrify" is only too appropriate. In the earlier stages of its growth, the plant is very far from conspicuous; and it was not till a fortnight after my arrival that I was at length able to identify it. After a prolonged search, however, I came across it in the corner of a wheat-field; and almost at the very moment of doing so, I caught sight of and promptly netted my first specimen of the insect. It is easy enough to take, not only on account of its conspicuous colour, but because it flies very sluggishly, and rarely seems to travel more than twenty yards from the spot where it first gets up. I think, in fact, that I only missed one specimen, which flew across a light-coloured road, out of the whole number seen during my visit. It is very easy, too, to identify at the time of capture, for two reasons: first, because of its colour, which is an uniform silvery-grey, with hardly any markings; and secondly, because of the attitude it takes up in the net—that of a fairly broad triangular sloping roof, resembling the tops of an old-fashioned dormer window—somewhat like, too, to the resting position of *Nisoniades* (*Thanaos*) *tages*, but rather flatter, and of course much more pointed at the tips of the wings. I regret to say that I am quite unable to give any directions as to the best method of obtaining *L. griseata*; it seems to fly almost at any time of the day, and without any indications which would lead one to expect its appearance. The abundance of the food-plant at any given spot seems to be no criterion whatsoever as to a corresponding abundance of the insect; I several times took it in places where not a single plant of the flixweed was to be seen; and contrariwise, in the place where the largest quantity of the plant was growing I did not take, or even see, a single specimen. A considerable amount of corn is grown

in the district, and it is at the edges of the corn fields that the *Sisymbrium* is chiefly to be found. But the insect, far from being confined to such places as these, is to be met with quite as frequently among the clovers and trefoils which also grow in the district, and which form, on the whole, the most productive hunting-ground for the entomologist. It is in these, almost exclusively, that *A. rubiginata* (*rubricata*) and *S. sticticalis* are to be found, and it is generally here too that *A. trabealis* (*sulphuralis*) occurs. But, if my limited experience is worth anything, I should characterise *L. griseata* as a scarcer insect than either of these, inasmuch as it never seems to occur in any quantity. I took five specimens during my twelve days' visit to Thetford, when I netted it among the rest just as it came; but this year, when I devoted special attention to obtaining it, I only got thirteen, and on no single day did I meet with more than three. I was indeed told by an inhabitant of the place that the food-plant was far more abundant in the fenny parts of the district than in the corn fields of the higher levels, but this is a statement which I had no opportunity of putting to the proof. I am inclined to think that the best way of obtaining *L. griseata* in any numbers would be to rear it from the larva, of which there is an excellent account in Buckler's great book, published by the Ray Society. It undoubtedly feeds on the seed-vessels of the *Sisymbrium*, and would probably be best found at night, by the help of a lantern. But on this point the local entomologists must needs know far more than I do. It is quite possible that the larva is specially subject to the attacks of ichneumons, or that a large proportion are destroyed every year when the corn is reaped, though I imagine that many come to maturity before that time. At all events, I feel pretty well convinced that the perfect insect is far from common, even in its rather restricted localities. One thing which I noticed was, that the female was far commoner than the male; and this is by no means the usual state of things among the Lepidoptera. It would be a great boon to entomological science if some one with leisure, and with the great advantage of constant residence in the district, would make it his business to become more perfectly acquainted with *L. griseata*, and would thoroughly work out its life-history.

About the other species taken during my visit, speaking generally, the less said the better. One very good insect I did indeed obtain, a lovely specimen of *Orobena* (*Pionea*) *extimalis* (*margaritalis*), which started up just in front of me in a clover-field, and whose identity I did not at first recognise, having never seen the species alive before. I need scarcely say that it was a welcome addition to my collection, or that I eagerly searched the locality for more, but unfortunately in vain. In the clover-fields, too, *Aspilates citraria* and *Spilodes verticalis* occurred occasionally, though neither of them was abundant; and I took four specimens of *Bapta* (*Corycia*) *bimaculata* (*taminata*) in one corner of a cornfield, where they must have been reared on hawthorn, as not a vestige of bird-cherry was to be found anywhere near them. I also got three specimens of *Dianthoecia carpophaga* at Valerian flowers, one of which was a nice pale form; but flowers in general were singularly unproductive, the only exception being Viper's Bugloss, which grows in profusion in some of the clover-fields, and at which a few of the commonest *Noctuae* were to be found enjoying

themselves in the evening. I did not try "sugar," but from various indications I don't think it would have produced much result. It was partly because of the dearth of other species that I was led to pay so much attention to *Lithosteje griseata;* and it is to tell the readers of the *Entomologist's Record* what little I know about that insect that I have chiefly been moved to write these notes.

The genus Pseudacraea—an extraordinary example of mimetic polymorphism.

By T. A. CHAPMAN, M.D., F.Z.S., F.E.S.

At the Oxford Congress Prof. Poulton produced quite a dramatic effect in giving the present views as to certain species of this genus, which only failed of a sensational climax, because a crucial specimen would not emerge from the pupa quite in time for Dr. G. D. H. Carpenter to send a telegram anent it from Bugalla on the Nyanza.

Prof. Poulton announces, in *Nature* of September 12th, that the telegram has since arrived, and the expected specimen settles, not absolutely, but with reasonable certainty, that some dozen recognized species of the genus *Pseudacraea* are all forms of *Pseudacraea eurytus*, L., a conclusion arrived at some years ago by Dr. K. Jordan* from an examination of the male appendages, but not positively asserted till some breeding experiments should support so startling a fact. Space will not allow of even a sketch of the mimicry by the various forms, each of a different species of *Planema*, spread over a great part of tropical and South Africa. It would seem that the mimic in this way secures a much wider distribution than any one of its models.

It is of interest, by the way, to note that the first definite step to the recognition of this unity of many supposed distinct species was taken by Dr. Jordan as a result of examinations of the male genitalia. He refrained from asserting the result as proved, since though differences in the genitalia show species to be distinct, identity does not prove specific identity unless there is some other ground for such a deduction. In the case of these *Pseudacraeae*, the presumption and general opinion was in favour of their being distinct. Now we have proof that some at least of these supposed "good" species are not distinct, and the presumption is in favour of their being all one species; Dr. Jordan's results are therefore decisive on this subject.

The literature bearing on the subject is already considerable, we may quote from Prof. Poulton's letter to *Nature*:—

"The conclusion was a very startling one. If each mimetic *Pseudacraea* had been confined to a single area and had interbred on its margin with the *Pseudacraeae* of surrounding areas with different mimetic patterns, we should have been confronted with a more remarkable and complex example than any as yet known (except perhaps *Papilio dardanus*), but one that raised no special difficulty. Dr. Jordan's discovery, however, involved far more than this: it led to the remarkable conclusion that the sexually dimorphic *P. hobleyi*, mimicking the sexually dimorphic *Planema macarista* in the Entebbe district, was the same species as the two monomorphic Pseudacræas flying in the same forests with it, *viz.*, *P. terra* and *P. obscura*,

* 1er Congrès international d'Entomologie, Vol. II., p. 398.

mimicking respectively the sexually monomorphic *Planema tellus* and *P. paragea*.

"Dr. Jordan communicated his discovery to the First International Entomological Congress, meeting at Brussels in 1910."

He continues with a relation of various confirmatory facts and of efforts to obtain successful breeding experiments, by some of the numerous observers in Africa, who have in the Hope Professor a source of inspiration for their researches and an authority who gives these most of their value, by combining them in support of many valuable conclusions. One of the most remarkable of these is certainly this confirmation of the conclusions pointed to by Dr. Jordan's work.

Prof. Poulton thus records the result of Dr. Carpenter's first crucial observations. "Dr. Carpenter first succeeded in finding and rearing the larvæ of *P. lucretia*, and then made many attempts to obtain eggs from captured females of the *hobleyi* group. Discouraged by many failures, he was beginning to despair when, some weeks past, he observed in the Bugalla forest a female *obscura* "with a touch of *hobleyi*" settling in an unusual position on a leaf of the food-plant of *lucretia*—almost certainly a Sapotaceous plant. The butterfly escaped, but Dr. Carpenter found the egg on the leaf, and hoped to rear the perfect insect before or during the meeting of the Second International Congress at Oxford (August 5th to 10th), and he promised that if the offspring turned out to be *terra* or *hobleyi*, he would cable the result. He wrote that he anticipated *terra*, because this form is much the commonest in Bugalla.

Unfortunately the eagerly-expected butterfly did not emerge until after the meeting, but on August 19th I received a cable from Entebbe with the word '*terra*.'"

We may expect further observations and experiments to more completely confirm the position advanced by Dr. Jordan, but it is already on a firm foundation.

Random Notes on 1912.

By E. A. COCKAYNE, M.D., F.E.S.

My first day's collecting this year, February 27th, was at Chingford, where I took a few dark forms of *Hibernia leucophaearia*, a female of *H. progemmaria* and a fine male of *Apocheima hispidaria*. Next day, in addition to the first two species, I saw one *Alsophila* (*Anisopteryx*) *aescularia* on a hornbeam and three or four lying dead on the surface of a small pond in company with one *Cerastis vaccinii*, one *Taeniocampa cruda*, and several *H. leucophaearia* and *H. progemmaria*. *H. leucophaearia* was unusually abundant at the end of the week (March 2nd and 3rd), and the days being warm and sunny, the insect flew readily, giving an exceptionally good opportunity of estimating the relative numbers of the light and dark forms. Many were found on the surface of some small ponds, and the percentage of dark and light forms seen in this way agreed fairly well with that of the captured specimens, and served as a valuable control. I examined 290, and estimate the percentage of the different forms as follows:—Light forms 70 per cent., and melanic 30 per cent.

The ab. *marmorinaria* was found to form three or four per cent. of

the total number. Melanic specimens can be divided into smooth dark forms with no irroration with pale scales, and those with pale scales in more or less abundance; the first-named form about ten per cent. of all specimens. Some of the most extreme show a tendency to have fringes paler than the ground colour of the wings, and three or four exhibit a segregation of the darkest scales into the basal and marginal areas, and perhaps should be regarded as the extreme melanic form of the ab. *marmorinaria*.

Amongst my series I found one with yellow ground colour and markings indistinct, and another, a very large specimen, with basal area suffused with dark scales as far as the central line. This is, as far as I am aware, unique. Only one female, a melanic one, was found. On March 25th I obtained a pairing between the male of *Amphidasis strataria* (*prodromaria*) and the female of *Biston hirtaria*, but the ova were infertile, and all attempts to obtain the reverse cross were fruitless. April 6th and 7th, bright sunny days, were spent in the New Forest, but no effort was made to collect. Numbers of hybernated *Gonepteryx rhamni* were seen, and a few *Vanessa io* and *Eugonia polychloros*. A fine female of *Pararge aegeria* was also noticed. *Eupithecia abbreviata* was fairly common on tree trunks, and four Tephrosias were found on some larches. They are quite as pale as *Tephrosia crepuscularia*, but must be *T. bistortata*, since a typical second brood male emerged on June 24th, actually darker than its parent. During April I took some pupæ of *Aegeria* (*Trochilium*) *andrenaeformis*, and bred from them fifteen imagines, but the only parasite was the too common *Meniscus pimplator*. Most of the other parasites are rather scarce, and the majority seem to attack half-grown larvæ.

Celastrina argiolus was abundant wherever I went for the Clearwing, in Surrey, Essex, Kent and Hertford, and hybernated specimens of *Aglais urticae* and *V. io* were unusually common. At Shackleford, in Surrey, a fresh but small female *Eupithecia coronata* was seen on April 28th on a small sapling. May 5th was spent at Box Hill, where several *Celastrina argiolus* were flying round the beeches! Low down on larch trunks I took two *Tephrosia consonaria*; one was a female, but unfortunately it laid no eggs. Two *Drepana cultraria* (*unguicula*) were seen flying round the beeches.

On May 11th I went to the Chalfont Road district to try and get another female of *Tephrosia consonaria*, but found none, and though I took a male *Lithosia sororcula* (*aureola*) on a beech trunk, moths seemed rather scarce. A fine female of this insect was taken on the wing at Box Hill on the 18th.

On May 12th I walked from Brookwood to Farnborough, and on the bank of the Basingstoke Canal *Pararge megaera* and *Celastrina argiolus* were common, and *Pieris napi*, *Euchloë cardamines*, *Gonepteryx rhamni*, *Rumicia phlaeas*, *Polyommatus icarus*, and one *Brenthis euphrosyne* were seen. *Heliaca tenebrata* (*arbuti*) was caught near Brookwood, and *Tephrosia punctularia* was abundant at rest on the alders. At Farnborough I took two *Dasychira pudibunda*, one *Drepana binaria* (*hamula*) (female), one *Diaphora mendica* (female), one *Spilosoma menthastri*, one *Clostera curtula* (male), *Hipocrita jacobaeae*, and several *Macaria liturata* were seen near the pine trees.

May 18th was cold and showery, but larvæ of *Lithosia deplana* were

beaten from yew at Box Hill, but no larvæ of *Boarmia abietaria* were seen. I noticed *Nisoniades tages*, *Drepana cultraria*, *Hepialus lupulina*, *Hadena dentina*, *Bapta temerata*, *Opisthograptis* (*Rumia*) *luteolata* (*crataegata*), *Phibalapteryx vitalbata*, *Coremia designata*, *C. ferrugata*, *Eupithecia indigata* and *Anaitis plagiata*.

On May 21st I went for the evening to Oxshott to try and get a female of *Eucosmia undulata* for ova, but saw none, though imagines were emerging in my cages from larvæ taken there last year. *Drepana falcataria*, *D. lacertinaria*, *Cilix glaucata* (*spinula*), *Tephrosia punctularia*, *Boarmia consortaria*, from which I had more than 100 full-fed larvæ (about $\frac{2}{3}$ dark brown and $\frac{1}{3}$ green), and now have a fine lot of pupæ, *Eupisteria obliterata* (*heparata*), *Lomaspilis marginata*, *Cabera exanthemaria*, *C. pusaria*, *Coremia ferrugata*, *C. unidentaria*, *Eupithecia vulgata* (melanic), and *Thera obeliscata* (*variata* auc.).

On May 25th, 26th, and 27th, I collected with Mr. F. W. J. Jackson, near Oxford. On some ploughed land a good many *Pyrameis cardui* in poor condition were put up. In glades in the wood, *Vanessa io*, *Brenthis euphrosyne*, *Hamearis lucina*, and *Callophrys rubi* were caught but only one *Hemaris bombyliformis* was seen.

On the more marshy ground *Euclidia glyphica* and *E. mi* were common, *Prothymnia* (*Phytometra*) *viridaria*, *Adscita statices*, and *Ematurga atomaria* were flying. *E. atomaria* here is rather large, pale, and clearly marked. In the oak woods *Drepana binaria* (*hamula*) was common, but very difficult to catch. We were too late for *Eupithecia pusillata*, and only one worn female was captured, but a very pale *Gonodontis* (*Odontopera*) *bidentata* was shaken from a spruce tree and later on *D. falcataria* was disturbed from a birch. At dusk, amongst other moths, we netted *Ligdia adustata*, *Bapta temerata*, *Melanippe unangulata*, and *Emmelesia decolorata*.

By searching aspens we found larvæ of *Taeniocampa populeti* and *Brephos notha*, both nearly full-fed, hidden between two leaves, and one or two worn *Lobophora hexapterata* on the trunks. One of the last-named was also found on the trunk of an old white poplar far from any aspen, and at the base of the trunk were some old emergence holes of *Trochilium apiformis*. Larvæ of *Plusia moneta* were found on *Delphinium* in a garden, where we had tea.

In the evening we found males of *Hepialus hecta* abundant. At first they were hovering backwards and forwards, and sometimes two or three would fly so close together that they actually bumped up against one another. Some hovered for a long time, others quickly settled down on plants, in some instances only to start off again swinging backwards and forwards in the air. Finally all were at rest with forewing half expanded, the glandular structure on the hind legs very visible, and the tip of the abdomen extended.

Closely as we watched, we saw no female approach and touch a male in flight, as I have noticed in *H. humuli*, and as Mr. Robson describes in this species in the *Ent. Record*, vol. iii., p. 55, though a female had been caught before any males were on the wing. By carefully marking down a number of males on some comfrey plants, and looking from time to time, we found that pairing took place without the male changing his position, and actually saw it happen twice. It was over very quickly, and the female at once let go and hung head downwards with legs and wings tightly held to the abdomen. An

hour later most of the males were in an attitude of rest, though one or two appeared still to be calling.

When *H. hecta* had settled down, *H. lupulina* began to fly, the males dashing wildly in search of the females over the damper patches of ground. Both of us took a few beautiful specimens almost uniformly cream coloured, and Mr. Jackson took one with normal ground colour, but greatly extended white markings. The strange contrast in the habits of these two Hepialids suggests that their relationship is not very close, in spite of their somewhat similar appearance.

On June 9th, less than two hours larva-beating produced 45 larvæ of *Panolis piniperda*, some very small, others fullfed, a very small larva of *Bupalus piniaria*, and four rather larger ones of *Thera firmata*. One of the *T. firmata* larvæ fed up fairly quickly, and pupating on July 8th, produced a rather dark imago on July 26th, but the others, on October 1st, are not yet fullfed. The first brood of the insect must have been out in early May, and if others emerged as early as July 26th, there may be a third brood this year. The larvæ invariably rest so that the red-brown head is near the similarly coloured base of the pine needles, and this, together with their habit of eating almost the whole of the needle attacked, makes them very difficult indeed to see even in captivity.

On June 23rd there were many *Sesia stellatarum*, rather worn, hovering over the beach between Dover and Folkestone, and looking like recent immigrants.

On July 7th I journeyed to Bristol, and although *Acidalia holosericeata* was out as early as June 20th, I obtained a fine series of both sexes. Variation is very slight, and in the direction of the formation of a more distinct basal or submarginal band. From ova laid loose in the box, and not on the *Helianthemum* provided, I now have larvæ in their third instar feeding on knotgrass. *A. bisetata*, *A. imitaria*, and *A. marginepunctata*, with a very fresh female of *Ligdia adustata* (2nd brood), were also taken.

On July 13th I joined Mr. Jackson at Marlborough, and we walked through the magnificent beech avenues of Savernake Forest to Savernake, where we stayed for the week end. *Melanargia galathea* was abundant, and several *V. io* and *P. atalanta* were seen; *Argynnis adippe*, *A. aglaia*, and *Dryas paphia* were all in fine condition, the first being the commonest. *Aphantopus hyperantus* was very plentiful, and I was fortunate to take two ab. *arete* without much trouble. Two *Epinephele tithonus*, a male *C. argiolus*, one *Bithys* (*Thecla*) *quercûs* and three *Chattendenia w-album* were seen, with a few *Odezia atrata*.

At dusk in a narrow lane we caught *Opisthograptis luteolata* (*crataegata*), *Boarmia repandata*, *B. gemmaria*, *Mesoleuca ocellata*, *Melanthia bicolorata* (*rubiginata*), *Cidaria pyraliata*, *Melenydris didymata*, *Hydriomena furcata*, *Phibalapteryx tersata*, *Eupithecia isogrammata*, *Agrotis ravida*, *A. exclamationis*, *Hadena oleracea*, *Caradrina blanda*, *Apamea oculea*, and *Leucania pallens*, while along the canal bank *L. impura* was abundant, and one *Hydrilla arcuosa* was seen. In the woods my friend captured a fine *Euchloris pustulata* and a very fresh *Acidalia inornata*.

At Box Hill on July 20th I caught a fresh *Eupithecia coronata* (2nd brood), one *Urbicola comma*, and two *Argynnis aglaia*.

In spite of threatening weather, I went on July 28th to try and

take *Agriades coridon* ab. *semisyngrapha* in South Cambridgeshire, and saw one almost at once, but failed to catch it owing to high wind. Later I caught three perfect and one battered specimen. Many males and several females of *A. coridon* were found just emerged, and amongst them a number of crippled specimens were noticed, and a crippled female of *E. jurtina*. Freshly emerged *P. cardui* and *P. atalanta* were also seen, and in addition some larvæ of the latter. I determined to try again the next week, and left on Saturday evening, joining Mr. Jackson, who had come down earlier in the day, but, owing to dull weather, had only caught three of the variety.

Sunday started with torrents of rain, but about 11.30 the sky cleared and we had a fairly sunny day. *A. coridon* flew well, and we both got a good many fine ab. *semisyngrapha*, though there were a good many more or less damaged.

I stayed on till Monday evening, and altogether caught more than thirty, from which I shall be able to pick out a fine series. One example has a border of pale spots to the forewings, and pale radiations running out from the base and nearly reaching them and with blue markings replaced by green; two others have the blue area on the fore-wings extending considerably beyond the the central spot. *Vanessa io*, in fine condition, was common, but not many *P. cardui* were seen, and *E. tithonus* was becoming scarcer. A few *Polyommatus icarus*, with blue females, *Aricia medon (astrarche)*, and several *Urbicola comma* were seen. Two *Chattendenia w.-album* were caught on umbelliferous plants. The following *Noctuae* were noticed flying in the sunshine or feeding on knapweed between 12 a.m. and 3 p.m. *Charaeas graminis*, *Hydroecia nictitans*, *Leucania conigera*, *L. pallens*, *Caradrina blanda* and *Dianthoecia cucubali*.

Already the year has been remarkable for the abundance of the Vanessids, of *Celastrina argiolus* and *Drepana binaria* (*hamula*) in the Spring. Of the second broods of these insects, I have seen a good many *V. io*, a few *P. cardui* and *A. urticae*, but only a solitary *C. argiolus*. Larvæ of *P. atalanta* are common even in the Hampstead garden suburb, and if the weather improves there is still hope of an unusual number of these lovely butterflies in our gardens. The brilliant weather of the spring caused the early appearance of many insects and greatly favoured them, but I fear the continous wet weather of the last few weeks will have a disastrous effect on many species.

Notes on the Distribution of the Blattidæ.

By the late R. SHELFORD, M.A., F.Z.S., F.E.S.
Edited by MALCOLM BURR, D.Sc., F.L.S., F.E.S.

Genera peculiar to the Palæarctic Region :—

Sub-fam. Blattinæ, *Shelfordella*.

Sub-fam. Corydiinæ, *Anisogamia*, *Nymphytria*.

Total = 3.

Genera peculiar to the Oriental Region :—

Sub-fam. Ectobiinæ, *Pseudectobia* (s. str.).

Sub-fam. Pseudomopinæ, *Pseudothyrsocera*, *Pachnepteryx*, *Duryodana*, *Desmosia*.

Sub-fam. Epilamprinæ, *Thorax*, *Phlebonotus*, *Apsidopis*, *Compsolampra*, *Morphna*, *Opisthoplatia*, *Pseudophoraspis*.

Sub-fam. Blattinæ, *Thyrsocera*, *Miroblatta*, *Catara*, *Protagnista*, *Archiblatta*, *Nocticola*, *Spelaeoblatta*.
Sub-fam. Panchlorinæ, *Pycnoscelus* (excluding *P. surinamensis*, L.).
Sub-fam. Corydiinæ, *Corydia*, *Homopteroidea*, *Caradax**, *Ergaula*.
Sub-fam. Oxyhaloinæ, *Areolaria*.
Sub-fam. Perisphæriinæ, *Glyplopeltis*, *Perisphaeria*, *Pseudoglomeris*, *Stilpnoblatta*, *Trichoblatta*.
Sub-fam. Panesthiinæ, *Microdina*, *Caesparia*, *Miopanesthia*, *Mylacrina*.
Total = 84.

The Japanese genus *Kuroĸia*, Shiraki, is omitted from this analysis as the description of it is too imperfect to be of any diagnostic value.

Genera peculiar to the Australian Region :—
Sub-fam. Ectobiinæ, *Escala*.
Sub-fam. Pseudomopinæ, *Ellipsidion*, *Paratemnopteryx*.
Sub-fam. Epilamprinæ, *Molytria*, *Ataxigamia*, *Derocardia*.
Sub-fam. Blattinæ, *Polyzosteria*, *Euzosteria*, *Leptozosteria*, *Zonioploca*, *Cosmozosteria*, *Anamesia*, *Desmozosteria*, *Temnelytra*, *Scabina*.
Sub-fam. Panchlorinæ, *Oniscosoma*.
Sub-fam. Oxyhaloinæ, *Choristima*, *Ectoneura*.
Sub-fam. Perisphæriinæ, *Tepperia*.
Sub-fam. Panesthiinæ, *Hemipanesthia*, *Heteroplana*, *Geoscapheus*, *Macropanesthia*.
Total = 23.

Genera peculiar to the Ethiopian Region :—
Sub-fam. Ectobinæ, *Theganopteryx*, *Mallatoblatta*.
Sub-fam. Pseudomopinæ, *Chrastoblatta*, *Piroblatta*, *Anallacta*, *Apteroblatta*.
Sub-fam. Epilamprinæ, *Hedaia*, *Eustegasta*.
Sub-fam. Blattinæ, *Paramethana*, *Cartoblatta*, *Pseudoderopeltis*, *Deropeltis*.
Sub-fam. Panchlorinæ, *Phenacisma*, *Pseudogyna*, *Gyna*, *Rhyparobia* (excluding *R. maderae*, Fab.), *Pronauphoeta*, *Heminauphoeta*.
Sub-fam. Corydiinæ, *Ipisoma*, *Tivia*, *Anacompsa*.
Sub-fam. Oxyhaloinæ, *Peraplecta*, *Griffiniella*, *Anareolaria*, *Evea*.
Sub-fam. Perisphæriinæ, *Gynopeltis*, *Aptera*, *Ellipsica*, *Elliptoblatta*, *Gymnonyx*, *Pronaonota*, *Pilema*, *Cyrtotria*, *Bantua*, *Platysilpha*, *Derocalymma*, *Isoniscus*, *Melanoblatta*, *Hostilia*, *Poeciloblatta*, *Hyposphaeria* (*Melanosilpha*), *Homaloblatta*, *Blepharodera*, *Thliptoblatta*, *Karnya*, *Thoracopyga*, *Ateloblatta*, *Gromphadorrhina*, *Aeluropoda*.
Total = 49.

Genera peculiar to the Nearctic Region :—
None.

Genera peculiar to the Neotropical Region :—
Sub-fam. Ectobiinæ, *Phorticolea*.
Sub-fam. Pseudomopinæ, *Caloblatta*, *Pseudischnoptera*, *Macrophyllodromia*, *Paraceratinoptera*, *Anisopygia*.
Sub-fam. Nyctiborinæ, *Nyctibora*, *Eunyctibora*, *Paratropes*, *Heminyctobora*, *Megaloblatta*.

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* Nom. nov. for *Cardax*, Shelford (pre-occ.).

Sub-fam. Epilamprinæ, *Phoraspis, Notolampra, Pinaconota, Tribonidea, Phoetalia.*
Sub-fam. Panchlorinæ, *Pelloblatta, Anchoblatta, Achroblatta, Triconium, Tribonidium, Zetobora, Phortiaeca, Schizopilia, Capricina, Stenoblatta, Culama.*
Sub-fam. Blaberinæ, *Monachoda, Petasodes, Monistria, Blaptica, Byrsotria, Archimandrita, Blaberus, Hemiblabera, Cacoblatta.*
Sub-fam. Corydiinæ, *Melestora, Latindia, Paralatindia, Hypercompsa, Biolleya.*
Sub-fam. Oxyhaloinæ, *Plectoptera* (*Anaptycta*), *Atticola, Hemipterota, Hypnorna, Calhypnorna.*
Sub-fam. Perisphaeriinae, *Proscratea, Parasphaeria, Oxycercus, Mioblatta, Brachycola, Hormetica, Parahormetica, Dasyposoma.*
Total = 54.

Genera peculiar to the Palæarctic and Nearctic Regions (Holarctic):—
Sub-fam. Panesthyiinæ, *Cryptocercus.*
Total = 1.

Genera peculiar to the Palæarctic and Ethiopian Regions:—
Sub-fam. Ectobiinæ, *Ectobius, Hololampra.*
Total = 2.

Genera peculiar to the Palæarctic, Oriental, and Ethiopian Regions:—
Sub-fam. Corydiinæ, *Polyphaga.*
Total = 1.

Genera peculiar to the Oriental and Australian Regions:—
Sub-fam. Ectobiinæ, *Anaplectoidea.*
Sub-fam. Pseodomopinæ, *Allacta.*
Sub-fam. Blattinæ, *Platyzosteria, Cutilia, Methana, Eroblatta.*
Sub-fam. Oxyhaloinæ, *Diploptera, Prosoplecta.*
Sub-fam. Perisphæriinæ, *Peranauphoeta.*
Sub-fam. Panesthiinæ, *Salganea, Panesthia, Dicellonotus.*
Total = 12.

Genera peculiar to the Oriental and Ethiopian Regions:—
Sub-fam. Blattinæ, *Homalosilpha, Dorylaea.*
Sub-fam. Corydiinæ, *Dyscologamia, Alluaudella.*
Total = 4.

Genera peculiar to the Oriental and Neotropical Regions:—
Sub-fam. Pseudomopinæ, *Pseudophyllodromia,*
Sub-fam. Epilamprina, *Rhabdoblatta.*
Total = 2.

Genera peculiar to the Ethiopian and Neotropical Regions:—
Sub-fam. Pseudomopinæ, *Paraloboptera.*
Sub-fam. Panchlorinæ, *Nauphoeta.*
Sub-fam. Corydiinæ, *Sphecophila.*
Sub-fam. Oxyhaloinæ, *Oxyhaloa.*
Total = 5.

Genera peculiar to the Nearctic and Neotropical Regions:—
Sub-fam. Pseudomopinæ, *Pseudomops, Attaphila.*
Sub-fam. Blattinæ, *Eurycotis.*
Sub-fam. Corydiinæ, *Homaeogamia.*
Sub-fam. Oxyhaloinæ, *Plectoptera.*
Total = 5.

Notes on the various species of the genus Coleophora.

By Hy. J. TURNER, F.E.S.

Coleophora maeniacella.

Another species which occurs in the saltings very freely in the larval stage is a member of a very obscure group, all the species of which are attached to plants belonging to the *Chenopodiaceae*. This is *C. maeniacella*, and the larvæ can be obtained in large numbers by sweeping among the abundant growths of *Atriplex portulacoides*, *Suaeda maritima*, etc., in the marshes on the north side of the Thames estuary. Those I had were obtained at Fobbing on September 11th and 18th, 1904. The cases were cylindrical, tapering about equally to both ends, stouter and more substantial looking than any other of the species feeding on the marshes. As to colour it was indefinite; dirty looking shades of brown, ochreous or even black, and covered by debris, of various sorts, grains of dirt, sand, etc. Some, which were found on plants covered by each high tide, were sodden by water, but still contained apparently healthy larvæ. These latter cases were difficult to distinguish from the dirty succulent leaves of the *Suaeda*, which were of a similar shape to the cases. The larvæ feed preferably on the buds, flowers and seeds of the food plants, boring holes, which were very conspicuous when the larva had eaten out the central part and left for a neighbouring seed vessel or bud. All the cases showed streaks, irregular in width from end to end, and of a lighter shade, being the pieces inserted at the time of enlargement and consequently from being newer, were lighter in colour, *i.e.*, cleaner, and less covered by grains of dirt, etc. These insertions seem to be made anywhere and not especially along the lower side as in many species; always of course longitudinally. The anal opening is three valved.

"The general body colour of the larva is a dirty white. The head is of a light brown, slightly lighter than the plate of the first thoracic segment, but the brown is not so light as in *C. artemisiella*. The plate on the first thoracic segment is of a dull light brown, slightly glossy, and somewhat larger than is usual. There are a few small clouds of darker colour on this plate, and a white suture runs three-quarters of the way up the centre from the back, ending in one of these dark clouds. The second thoracic segment has four small plates in a semicircle with the concavity in front, and with the space between the two centre plates slightly more than between the side plates and the centre plates; these are darker, more black-brown than those on the preceding segment. The third thoracic segment has four plates exactly behind those on the preceding segment, and of the same colour, except that in some specimens the two exterior plates are larger, much fainter, and only perceived with difficulty. The side plates of these three segments are small, uniform in size, and not quite so dark as the plates on the back. The anal segment has a deep brown plate on the back, nearly covering the whole of the segment. The larva has four pairs of abdominal legs. The inner side of the bases of all the thoracic legs have small black-brown plates, which often disappear from view with the retractile movements of these limbs. The tips of the jaws are of the same dark colour."

The larvæ I had did very badly, and although very healthy when obtained, gradually deteriorated, became more and more wandering,

and finally died. Did they want periodic watering or the proximity of water twice a day as they would in nature with the advent of the tide? was the question which arose in my mind. I did not succeed in breeding one, nor did I have any better success with the 1905 larvæ which I kept out of doors from the time of obtaining them. Not one survived the winter.

On October 25th, 1904, I had the pleasure of seeing a larva enlarge its case, and a most remarkable process it was. It was my custom to have a few larvæ of each species under very frequent observation, even carrying them with me to my daily duties. About 11 p.m. I was giving a final glance at my larvæ for the night, when I found a case fixed longitudinally on a stem of the food plant, with an irregular slightly zigzag slit extending $\frac{2}{3}$ the length of the case from the anal end. The fore end of the slit was partly filled with loose threads of silk, either remnants of the ruptured inner silk lining of the case, or the commencement of the new gusset. The larva had its head and about $\frac{1}{3}$ of its body inside the case and was with its mouth fastening threads across the gap and near the anal extremity. The remaining $\frac{2}{3}$ of its body was protruding from the case as a kind of wedge about half way down the slit in the tube, and lying obliquely towards the fore end. The body was gripped by the edges of the slit and apparently well gripped as it was more bloated and swollen than the rest of the body observable in the tube. After a number of threads were placed in position in the anal part of the fissure (for about $\frac{1}{4}$ of the tube) obviously to regulate the new diameter of the case and to prevent the too wide yawning of the sides, the larva turned its head and that portion ($\frac{1}{3}$) of its body within the tube, in the direction of the mouth opening. Then with difficulty and after considerable effort it dragged the hanging out ($\frac{2}{3}$) portion of its body into the case, which slightly closed as the "wedge" was withdrawn. Now the larva lay in its normal position. Not long, however, did it rest. In a second or two I had the further pleasure of seeing it reverse its position, doubling back its very flexible body, both ends moving at about an equal rate, until its head was towards the anal end and the tail towards the mouth end. Then the process of closing up the gap went rapidly on and by midnight scarcely a trace of the larva could be seen through the rapidly growing layer of gray, not white, silk. In the morning the larva had moved and was feeding merrily in its enlarged residence.

I noted that the larvæ I obtained in 1905 affixed themselves in late autumn on the sides of the flower pot, on dead stems or on dried heads of the food plant, and did not subsequently move. None were bred.

Coleophora artemisiella.

The larvæ of this species were found in large numbers on every plant of *Artemisia maritima* on the sea walls near Fobbing, on September 11th, 1904. They feed on the flowers, stems, leaves, and seeds, and in confinement are one of the most uneasy and restless species I know. The cases are mealy, very soft, and delicate looking, and appear much like small portions of the growing, healthy plant. They are longitudinally striped with darker, less mealy stripes, so that the surface is about equally divided between the mealy stripes and the non-mealy inter-stripes. Although I have watched for weeks, I have never yet been able to see the larva of this species enlarge its case,

but think it probable that one set of stripes are the pieces inserted at the time of enlargement, but whether the mealy stripes or the non-mealy are the inserted ones I have failed to observe. These cases are contracted considerably towards both ends, and the anal end has three inconspicuous valves. In confinement the mealiness rapidly disappears, as a fact it is eaten by other larvæ, which have the habit of crawling over each other and getting into bunches.

"The general body colour of the larva is dirty, dingy, pale yellow, vitreous at the fore end of the body, but greenish on the back from the contents of the abdominal canal shining through the semi-transparent skin, which appears to be more transparent on the forward half than on the hinder half of the larva. The head is shining light brown-yellow, glossy. The first thoracic segment is completely covered by a very large plate, the suture of which partly divides it down the middle, being only seen with difficulty, with the light in a particular direction, and the sides reach almost down to the spiracular plates. The colour is but very slightly darker than the ground colour, which renders the plates very obscure. The second thoracic segment has two plates on the back, the front edges forming a curve with the concave part towards the head. The third thoracic segment has two dot-plates (?), but they are very obscure, as also are the spiracular plates of the three thoracic segments. The anal plate is large and black, and the outside bases of the anal claspers have a fair-sized round black dot-plate on each. There are four pairs of abdominal claspers."

This species seems very prone to the attacks of a Dipteron, for on every occasion when I have had the larvæ I have only bred an odd imago or none at all. In a month or two after obtaining the larvæ I invariably find a multitude of the black puparia of the fly at the bottom of the pot or larval cage. I have tried to feed this species on the garden wormwood and for a time some seemed to feed well, mining into the soft green stems, leaving only the outer cuticle, but they soon tired of it and wandered and wandered after the manner of their kind. I have never been succesful in breeding many of this species. They do not survive the winter in our suburban conditions. The loss of life among the larvæ must be enormous, as one never finds the imagines in any numbers in the early summer, so far as my experience goes. Possibly Mr. Whittle might be able to give us some details of how to successfully hybernate the larvæ, as he lives in the near neighbourhood of the local habitat of this species.

Adalia obliterata, L., ab. sublineata, Weise, in Surrey.

By G. W. NICHOLSON, M.D., F.E.S.

On September 22nd I swept three specimens of this aberration in a larch plantation on Boxhill, in Surrey. As it has, apparently, not as yet been recorded from Britain, and as it forms a connecting link between the type form of this—for a Coccinellid—extremely stable species and its ab. *fenestrata*, Weise, its capture should certainly be mentioned. Ganglbauer gives the following aberrations, or varieties as he calls them, of this insect:—(1) ab. *sublineata*, Weise, in which the elytra are marked with one or two longitudinal black stripes. (2) ab. *sexnotata*, Thunb., in which they are mottled with black or show three or four sharply defined black marks. (3) ab. *fenestrata*,

Weise, has the elytra black, with an ill-defined, usually irregular brownish-yellow transverse band at the base, and one or two light spots behind the middle. (It has been taken in this country on one or two occasions.) (4) ab. *illigeri*, Weise, with black elytra, which are lighter only at the base. (5) ab. *fumata*, Weise, in which they are uniformly black or brownish-black. In the latter forms the thorax may be black, except for a narrow border at the sides. My specimens all differ somewhat from each other. The first, which approaches most closely to the type-form, has an elongated black dash on the posterior third of each elytron, which is nearer to the margin than to the suture. In the second this dash, which occupies the same position, is more developed; in front of it, in the anterior half of each elytron, there is a minute black spot, occupying the same position relatively to the margin. In the third specimen the posterior black line is longer and more curved and the anterior spots are much larger. On looking over my series of *A. obliterata* I find one specimen, also from Boxhill, in which there is a small oblong black mark near the apex of each elytron. This is therefore an intermediate form. I would add that these spots should not be confounded with the blackish or brownish discoloration, usually asymmetrical, which are not infrequently found on the elytra of this, as well as of most other species of *Coccinellidae*, and which are clearly due to some mechanical cause.

SCIENTIFIC NOTES AND OBSERVATIONS.

Various Bionomical Notes.—There is probably nothing new in what is here recorded. May I humbly suggest that British lepidopterists, with one or two laudable exceptions, are too much afraid of publishing notes on rest attitudes, etc.? We are apt to forget that facts, which we observe every day, must be recorded in print, before others can compare their observations with ours. We fail to remember how much of Darwin's work was founded on minute observations and accurate records on living nature.

Papilio machaon, August 3rd, 1912, Stalham Broad.—Two full-grown larvæ. One willingly protruded the well-known fleshy tubercles. The scent of pine apples, but with a "bitter background," was distinctly perceptible, as usual. The other larva refused to show the tubercles, even when pinched. It appeared to be absolutely scentless.

Gonepteryx rhamni, May 9th, Wicken Fen, 3.35 p.m.—The day had been heavy, and thunder was about. Just at the time the sun was shining. I watched a male Brimstone settle down for the night under a leaf of meadow-sweet (*Spiraea ulmaria*). The disc of the forewing was not completely covered by the hindwing. The insect was sitting back downward, holding to one midrib of the leaf. The white undersides of the tips of the antennæ were strikingly conspicuous. They suggested the two eyes of some unknown beast, whose body was outlined by the stalks of the antennæ. The antennæ were, of course, porrected, and the tips bent ventrally (*i.e.*, upwards).

Plebeius argus (*aegon*), June 27th, Ashdown Forest; July 2nd, Matley and Denny Bogs, New Forest.—Abundant on both occasions. In sunlight the males generally orientated, but not always. Sometimes they orientate, head downwards, with wings nearly flat, and

forewings very much advanced. But they appear to be careless, even when fully awake, tending on the whole to be correctly orientated, and certainly preferring to be head downwards. Quite frequently they spread the hindwings completely, and the forewings partially. They sit on fences, heather, ling, gorse, and perhaps other plants. A ♂ with closed wings seen from above really does suggest a gorse pod. He has the same woolly, blue-white appearance. The forewing is always sunk as completely as possible behind the hindwing, and this as soon as the wings are closed. One ♂ "sawed" his hindwings, as blues so often do. I hope to cut sections of him and see if he was troubled by internal parasites.

Agriades thetis, June 18th, North Downs, Kent.—Sunny at intervals, windy, no rain. Males are always correctly orientated, if the sun is shining. The insect always settles on flowers of *Hippocrepis* (once on *Myosotis*). The insect is distinctly wary, and you must exercise care if you would approach within a yard of it. The ♀ is perhaps less careful about orientation.

Augiades (*Hesperia*) *sylvanus*, June 29th, Rhinefields, New Forest. —Both sexes, settling mostly on *Erica*, also on *Orchis maculata*.

Anthrocera meliloti, July 1st, New Forest.—A male was taken with two stamens of *Orchis maculata* adhering to its face. The day following was sunless, stuffy, and thundery. The insects were flying all the same. Surely this is unusual in a Burnet?

Miltochrista miniata.—From observations made in early July in the New Forest by Mr. G. Storey and myself we concluded that the ♂ flies at early dusk, and not later; one ♀ not till it is time for entomologists to "light up." Mr. Storey and myself took five ♀s while we were lighting our lamps one night. They all flew in towards two yards of ditch from different direction. Can they possibly have been flying to a ♂?

Noctua primulae (*festiva*), June 18th, Fairhill, Tonbridge, etc.—This species is more shy at sugar than most other *Noctuae*. It does not get decently drunk till after 10 p.m.

N. brunnea and *N. triangulum*, June 30th, New Forest.—Sugaring notes for June 30th say "warmer and cloudier than last night. *Brunnea* more abundant, *triangulum* less so." If this happens regularly, and is not accidental, it must mean *something!*

Plusia chrysitis (♂), June 12th, Fairhill.—At light. This specimen had two orchidaceous stamens attached by their sticky discs to the ventral surface of its eye, one on each side. I identified the stamens with practical certainty as those of *Habenaria bifolia*.

Geometra papilionaria.—I bred a good many specimens this year from near Rugby, and noted the time of emergence fairly accurately for several specimens.

Date.	♀.	♂.
June 22nd ..	— ..	2 specimens
June 23rd ..	— ..	6.15 p.m.
June 26th ..	— ..	9.45 & 12 noon
June 28th ..	8.15 p.m. ..	—
June 29th ..	— ..	10 a.m.
,, ..	— ..	12 noon.
June 30th ..	12 midnight ..	8.15 a.m.
July 2nd ..	5 p.m. ..	5 p.m.

These results are not very full, but I think they do point to the ♀

emerging in the evening, the ♂ in the forenoon. This conclusion was borne out by many other specimens, whose time of emergence was not accurately noted.

Ephyra annulata, June 29th, New Forest.—One specimen *at sugar!*

Cidaria pyraliata (♀), July 15th, Fairhill.—The rest attitude is not by any means easy to describe. The forewings are held flat, well advanced. The hindwings are completely covered by the forewings, except their costa, which curls up and over costa of forewings. The antennæ lie along the disc of the forewings.

Pachythelia (*Psyche*) *villosella*.—A few cases collected in the New Forest (July 3rd) by Mr. Storey and myself. Larvæ emerged from one of my cases on July 16th. They numbered about 400. I first noticed them as a long line of small insects proceeding rapidly along my mantlepiece towards the light. They had squeezed out of their box, and their phototropic instinct was exceedingly accurate. Arrived at the corner of the mantlepiece nearest the window, they had the wits to lower themselves by threads to the ground. At this point I captured them, or they would have been lost in the carpet. The whole brood kept to one narrow line of march with remarkable accuracy. They settled down quite soon to the duty of case-making. In each instance the case was commenced as a girdle round the 2nd and 3rd abdominal segments.

Epichnopteryx pulla (♂ s), June 13th, Wrotham Down, Kent.—The insect normally rests with the wings "roofed" and the antennæ beneath the costa of the forewings. When thoroughly awake the wings are more spread, and the antennæ are held forward in an "ordinary" position; they are perpetually quivering. I should like to investigate the anatomy and histology of these antennæ. The muscles, and more particularly the nerve-endings, should prove very interesting.

Micropteryx thunbergella, May 2nd, Hardwick Wood, Cambs.—Buzzing round privet bushes.

Micropteryx calthella.—Various localities. I have frequently noticed that a blossom, whether of *Caltha*, *Cardamine*, or other flower, either contains no *calthella* at all, or else that it contains at least half-a-dozen. It may be that in only a few flowers is the pollen in a suitable state of ripeness; but I incline to the view that the species is sociable.—P. A. Buxton, Fairhill, Tonbridge.

COLEOPTERA.

Capture of Aleochara brunneipennis near Leicester.—I have taken the above species at Sutton-in-the-Elms, near Leicester, on three different occasions; five specimens altogether. They were taken in haystack refuse, and have been confirmed by Dr. Sharpe; I ought rather to say named by him, as I did not know what species they were. Two specimens of *A. ruficornis* and a nice set of *Pseudopsis sulcata* were captured under the same stack.—W. H. Barrow, 4, Saxe-Coburg Street, Leicester. *August* 12*th*, 1912.

NOTES ON COLLECTING, Etc.

The Season 1912.—I should like to know if my experiences this

season are shared by other entomologists, as I personally never had such a poor one. A week at Towyn with two of my sons only brought us half-a-dozen of each of *Charaeas graminis*, *Agrotis tritici*, and *Bryophila perla*, with specimens of a few other species. This result after the early, unexpectedly early, start of the season has made it doubly disappointing. An outing to Earlswood, on February 11th, gave us our start with *Phigalia pedaria*, and also with a Syntomid on the last day of the frost, from Messrs. Cadbury's Cocoa Manufactory, that had just emerged and been knocked down with a sugar-bag. It was supposed to be a species from San Thomé. (The species is *Ceramidia butleri*, and is a native of Central Africa, G. T. B.-B.) The following week *P. pedaria* were again in evidence, but a visit to the woods on February 25th, with no net and, from habit at this time of the year, with only a few pill-boxes, found the wood literally alive with *Hibernia leucophaearia*, a sharp shout causing them to fall from the tree trunks like the leaves in an autumn wind after a night's frost. We took a few picked specimens and added to them *P. pedaria*, *H. brumata*, *Hibernia progemmaria*, and one *Asphalia flavicornis*. March 3rd added *Alsophila* (*Anisopteryx*) *aescularia* and repeated the above list. The *A. flavicornis* of this date was resting on a loop in the railway-paling wires, but, unfortunately, was a spent female. March 24th found all the above species still about, but *Hibernia leucophaearia* had given way to *Panolis piniperda*, while March 31st gave us a fine female *Pachys* (*Amphidasis*) *strataria*. The Easter week gave us *Lobophora carpinata* (*lobulata*) and *Tephrosia crepuscularia*, the latter nearly all of the dark form. Later on *Malenydris multristigaria* was seen. I had forgotten to say that on March 21st I was delighted to see both sexes of *Gonepteryx rhamni* flying well in the woods, and following much the same round were male *Euchloë cardamines*. Was not this very nearly the earliest date for the latter species? Now began a close hunt for *Tricopteryx viretata*, which was fairly successful. The first specimen came on April 24th, one only, and also our first *Callophrys rubi*, a few *Celastrina argiolus* and *T. crepuscularia*. April 28th, added *Saturnia carpini* to this list, with another *T. viretata*. May opened with seven *Lasiocampa quercûs* larvæ, apparently part of a brood on the edge of a golf green. Two of these emerged on June 15th, one came out later, and the others are lying over presumably to become var. *callunae*. On the same date we added to our takings *Mamestra* (*Hadena*) *glauca* and *Lampropteryx suffumata*, while seven *T. viretata* were captured. May 12th added *Dicranura vinula*, male, *Notodonta phoebe* (*dictaea*), *Gonodontis bidentata* and *Bupalus piniaria*, and *T. viretata* was at its highest. The next week, May 19th, repeated all but *D. vinula* and *N. phoebe* (*dictaea*), and added *Cidaria corylata*, *Epirrita* (*Oporabia*) *dilutata*, and a batch of unknown ova. May 27th gave us *Leptosia sinapis*, *Mamestra* (*Hadena*) *genistae*, *Anaitis plagiata*, *Polygonia c-album*, *Ligdia adustata*, *C. temerata*, *Eulype* (*Melanippe*) *hastata*, and the usual common species of May. *Brenthis selene* had also just emerged, and, last but not least, we took six *Arctia villica* and a batch of ova laid on the leaves of a young lime tree disclosed to us during a rough wind. This date was spent around Lydney and district. After May our captures have decreased week by week till lately we get little or nothing from our outings. I have given the dates above as they may be useful for comparison with the experiences

of others.—F. Fountain, 191, Darwin Street, Birmingham. *August 24th*, 1912.

Seasonal Notes, 1912.—I don't know how other collectors fared at the sallows this year, but on the two occasions when I visited them at Woldingham I found insects scarce. My first evening, on March 16th, seemed in every way a suitable one, warm and moist, but only a few *Taeniocampa stabilis*, *T. incerta* and *T. gothica* put in an appearance. My second venture, on March 30th, a very cold bright night, resulted in two *T. gracilis* being taken in good condition, the only other species seen being *T. gothica*, worn. A visit to Tilgate Forest, on April 6th, a fine bright day, found *Brephos parthenias* on the wing in fair condition, and a couple of *Vanessa io* were observed. Although the tree trunks and fences were well scrutinized not an insect was seen at rest. Easter Monday, April 8th, was a bleak day but a walk from Walton Heath to Dorking was taken, *via* Headley and Ranmore Common; although many likely spots were searched for *Arctia caja* and other larvæ, none were met with, nor was any insect observed at rest throughout the whole walk. The same state of affairs prevailed on the following day during a walk across country from Caterham to Oxted. The hot summer of 1911 must have had an adverse effect on *A. caja*; perhaps a second brood was attempted with fatal results. I usually come across a fair number of the larvæ every spring, this year I saw one only. A trip to Wiltshire on April 18th, for *Melitaea aurinia*, was quite successful and a nice series was bred from the larvæ obtained. On April 28th, a day's run was made to the New Forest for *Boarmia cinctaria* and from captured females a good supply of ova was obtained. Sleeved out on sallow the larvæ seemed to do remarkably well. *Limenitis sibylla* larvæ were also taken, but the particular spot searched had been, I should imagine, well overlooked previously. On May 14th a few *Scodonia belgiaria* were captured at Oxshott; more would have been got but for my lamp proving fractious. At dusk a female *Cidaria silaceata* was taken, and from ova obtained a few fine imagines were bred. Ova of *Euchloë cardamines* were fairly common in the lanes round Purley during May, but comparatively few of the larvæ were got into pupæ, owing, I consider, to their cannibalistic habits in their earlier stages. On Whit Monday (May 27th) a visit was paid to Abbot's wood, where *Brenthis selene*, *Adscita statices*, and *Tanagra atrata* (*chaerophyllata*) were taken in good condition, and larvæ of *Bithys* (*Zephyrus*) *quercus* beaten. On June 1st I attended the South London field meeting at Brentwood, and although not successful in obtaining one of the three *Notolophus gonostigma* larvæ that were beaten, I was fortunate in securing at dusk two *Erastria venustula*, one in fine condition. During June I succeeded in breeding a fine series of *Melitaea cinxia* from larvæ obtained the previous July. At the time when the larvæ were feeding there was plenty of sunshine, and full advantage was taken of this. At the end of June a three days' trip was made to Witherslack, a locality I had long wished to visit. On the mosses *Coenonympha davus* (*typhon*) was well in evidence, but going over; by selection a short but fairly satisfactory series was taken. Other species seen or taken on the mosses were *Diacrisia sanio*, (*Euthemonia russula*) just out, *Lasiocampa quercus*, *Hyria muricata* (*auroraria*), *Acidalia fumata*, *Fidonia atomaria* and *Aspilates strigillaria*. In the meadows *Aricia*

medon (*astrarche*) and var. *salmacis*, and some fine *P. icarus* were taken; two nests of *Vanessa io* were noted. Dusking proved very disappointing after all I had heard of the locality, but this was probably owing to the cold and damp nights that prevailed. The visit altogether was a most interesting one, and I hope to repeat it another year. On July 7th larvæ of *Celastrina argiolus* (this species appears to have been most abundant this year) and *Callophrys rubi* were taken on the berries of dogwood at Reigate, but many of the former proved to be stung. On Sunday, July 7th, an excursion was made to Deal, the objective being larva of *Pyrameis cardui*. A few were obtained, also ova and a male just out. Full fed larvæ of *P. atalanta* were common on one big bank of nettles and with them were taken larvæ of *P. cardui*. The latter seem to choose thistle for their food plant, but appear to be quite content with nettle; in my opinion those larvæ brought up on nettle produce finer pupæ than those reared on thistle, and I believe this opinion to be shared by other entomologists. *Mesotype lineolata* (*virgata*) was on the wing on the sandhills, but was getting worn, and a female *Sesia* (*Macroglossa*) *stellatarum* was observed ovipositing on lady's bedstraw. A trip to Margate, on July 21st, gave barren results, it was apparently too soon for *Colias edusa* and things generally were scarce. A search for ova of *Celastrina argiolus*, at Reigate, on July 27th, resulted in two or three being discovered deposited on the unopened flower buds of bramble, but I doubt if they were so deposited from choice. There is no ivy in the immediate neighbourhood of the spot where the species occurs, and the question is upon what foodplant does it deposit its ova. In a flowery field at Caterham, on August 11th, the following butterflies were observed in the condition noted:—*Pieris rapae* (good), *Vanessa io* and *Pyrameis atalanta* (fine), *P. cardui*, *Epinephele jurtina*, *Coenonympha pamphilus* (worn), *Rumicia* (*Chrysophanus*) *phlaeas* (fine), *Aricia medon* (*astrarche*) (good), *P. icarus*, *Agriades coridon*, and *Adopaea flava* (*linea*) (worn). My only *Colias edusa* was seen on August 16th on waste ground in Kingsway within a hundred yards of Holborn, surely a strange locality to find it in. The insect was busy visiting the willow herb and other wild plants growing on the spot; it was, I think, a female, but a high fence prevented close inspection. Are the larvæ of *Polia flavicincta* cannibalistic? I had a fine brood of them from Cornish stock, but upon searching for the pupæ where there should have been a dozen, only one or two were found, the remainder had disappeared without leaving a trace behind. I found the early part of the year favorable for collecting, but upon the weather becoming bad lepidoptera seemed to get scarce, and the wet weather which has prevailed throughout the present month (August) has put a thorough damper on everything. I have only tried sugaring once or twice and then have met with no success. I am now hoping for a fine September and October with which to finish the season. I shall be glad to learn the experience of other collectors during the year.—A. Russell (F.E.S.), "Wilverley," Dale Road, Purley, Surrey. *August 27th.*

CURRENT NOTES AND SHORT NOTICES.

The Collections of Insects in the Natural History Section of the British Museum are no doubt far and away the richest in the world in species and specimens of all orders. Huge additions are constantly

being made by gift and bequest, while lesser donations of type specimens and sets of special forms help to fill the smaller gaps and render consultation of the Museum's store a necessity to every serious student. Quite recently, by the will of the late Mr. H. J. Adams, of Enfield, the Museum has acquired some 150,000 exotic butterflies and moths, most of them in very perfect condition. The 68 cabinets and the large number of store-boxes in which the collection is contained are already in the Museum and no doubt ere long will be available for consultation. It was not very long ago that the rich and unique collection of the smaller Lepidoptera made by the Right Hon. Lord Walsingham was most generously given to the Museum, and now it is rumoured that another extremely fine micro-collection will ere long find the same final destination.

In the April and following numbers of the *Ent. Mo. Mag.* Dr. J. H. Wood contributes notes on the various British species of the Dipterous family *Phoridae* and describes the following species as new to science:—*Hypocera irregularis*, from Stoke Wood; *Aphiochaeta simulans*; *A. breviseta*, from Mainswood; *A. atrimana*, from Middle Park and Westhide; *A. major*, from Weybridge, from Mr. Collin; *A. angustifrons*, from Mainswood; *A. hyalipennis*, from Stoke Park and Wood; *A. rubescens*, from Hereford, in the house; and *A. longicostalis*, from the nest of *Lasius fuliginosus*, at Darenth, found by Mr. Donisthorpe. On page 173 Dr. Wood commenced a tabular analytical scheme of the numerous species so far identified as belonging to the large genus *Aphiochaeta*.

In the July number of the *Ent. Mo. Mag.* Mr. Norman H. Joy gives an analytical table of the Coleopterous genus *Gyrophaena* and describes a new species, *G. convexicollis*, and also adds another species, *G. bihamata* to the British list. The former is very near *G. lucidula* and the latter will probably be found in collections mixed with *G. laevipennis*. Dr. David Sharp adds two new species to the British list of Coleoptera, *Strophosomus curvipes*, which he found near Bournemouth, and *Planeustomus flavicollis*, which his daughter obtained in flood refuse near Brockenhurst.

In the August number of the *Ent. Mo. Mag.* Mr. Bagnall announces *Cephalothrips monilicornis* as an addition to the British Thysanoptera. It was taken by him in the New Forest in August, 1911.

In recent numbers of the *Ent. Mo. Mag.* further instalments of new British species of Diptera are given from the notes of the late Mr. G. H. Verrall. The species are *Hercostomus subsimplicipes*, taken at Porthcawl, Bridgend and Port Talbot in July 1906 and 1908; *Gymnopternus brevicornis*, taken at Nethy Bridge, June 15th, 1905; *G. angustifrons*, taken by Dr. Wood at Moccas Pool, September, 1910; *Chrysotus suavis*, taken by Col. Yerbury at Porthcawl and in Glamorganshire; *C. melampodius*, from Brockenhurst, Porthcawl, &c.; *C. varians*, from Lyndhurst, Rannoch, &c.; *Argyra grata*, taken by Dr. Wood in Herefordshire; *Porphyrops fracta*, from Nethy Bridge, by Col. Yerbury in June, 1905; *Syntormon spicatus*, taken near Tarrington by Dr. Wood in 1906; *S. filiger* (*rufipes*), taken by Col. Yerbury at Walton-on-Naze, Christchurch, &c.; *Achalcus melanotrichus*, bred from Snailwell, Cambs.; *Thrypticus divisus*, from Nairn and Weybridge; *T. laetus*, from Weybridge and Porthcawl; *T. pollinosus*, taken in July, 1905, at

Aviemore, by Colonel Yerbury; *Medeterus infumatus*, from Nethy Bridge, taken by Col. Yerbury, June and July, 1905; *M. nitidus*, bred by Mr. Donisthorpe in 1910; *M. excellens*, taken sparingly at Nethy Bridge in 1905, by C. G. Lamb; *Telmaturgus tumidulus*, on the margins of a Pond at Rempstone, Dorset, by Col. Yerbury in August, 1909; *Campsicnemus compeditus*, in June, 1907, at Studland, by Col. Yerbury; *C. marginatus*, odd specimens taken by Dr. Wood; *Teuchophorus calcaratus*, Monnow Valley, Herefordshire, by Dr. Wood; *Aphrosylus mitis*, abundant at Woodbridge, Suffolk, etc., in 1907 and 1908; *Callimyia elegans*, taken by Col. Yerbury, at Porthcawl; *Agathomyia zetterstedti*, sent from Hereford, September, 1907, by Dr. Wood; *Pipunculus incognitus*, taken by Col. Yerbury, at Nairn, in 1905; *Chilosia velutina*, taken by Mr. R. C. Bradley at W. Runton, in 1900; *Sphaerophoria loewii*, taken by Col. Yerbury, at Gravesend, in June, 1908; *Hammerschmidtia ferruginea*, taken by Col. Yerbury, at Spey Bridge, in June, 1905; *Eudoromyia magnicornis*, taken at Lyndhurst Road, in July, 1897; *Vibrissina turrita*, from Tangham Wood, Suffolk, in August, 1907; *Ptychomyia selecta*, from Lyndhurst, Swansea, Hereford, etc.; *Bothria subalpina*, taken by Mr. Wainwright near Birmingham; *Germaria angustata*, taken at Martham, Norfolk, in June, 1888; *Onesia gentilis*, from Lewes, Folkestone, Chippenham Fen, etc.; *Syntomogaster exigua*, in Herefordshire, by Dr. Wood; *S. fasciata*, taken at Lyndhurst in May, 1897, and by Mr. Atmore, at King's Lynn, in 1910; *Cinochira atra*, from Woodbridge in Suffolk, in July, 1908, by Mr. J. E. Collin; *Sarcophaga sinuata*, taken at Mildenhall, in Suffolk, in May, 1909, by Col. Yerbury; *S. pumila*, at Barton Mills, Suffolk, in May, 1909; *Pyrellia aenea*, very common at Wicken Fen (formerly known as *P. cadaverina*); *Spilogaster platyptera*, taken at Lyndhurst, in June, 1872, and at Penzance in 1871; *S. halterata*, from Eridge, Kent, in June, 1886; *Limnophora maritima*, taken by Col. Yerbury, at Walton-on-Naze, in August, 1907; *Homalomyia fucivorax*, taken by Dr. Wood in the Monnow Valley; *H. lineata*, bred from rotten debris in a hollow tree near Newmarket; *Pegomyia rufina*, from Dawlish; *P. squamifera*, in the garden at Newmarket, in June, 1904; *P. interruptella*, taken at Soham and Wicken, in May, 1892; *P. femorata*, a common species; *Anthomyia procellaris*, a widely distributed species; *A. imbrida*, also widely spread; *Chortophila latipennis*, taken at Lyndhurst, in June, 1874; *Chirosia crassiseta*, taken at Porthcawl, in June, 1906; *C. parvicornis*, very widely distributed; *Lispa pygmaea* (*tenuipalpis*), taken at Bournemouth, in August, 1874, and elsewhere since; *L. hydromyzina*, probably collected by the late Rev. T. A. Marshall; *Caricea erythrocera*, taken near Hay, in Herefordshire, in July, 1901-2, by Dr. Wood; *C. brachialis* taken by Dr. Wood, in April, 1903; *Limnospila albifrons*, common near Aldeburgh and Woodbridge, in August; *Coenosia dorsalis*, a rather common species; *C. albatella*, taken at Porthcawl, in June, 1906; *C. atra*, from Wicken Fen and Barton Mills; *C. bilineella*, taken by Col. Yerbury, at Nairn, in May, 1905; *C. lineatipes*, taken by Dr. Wood near Farrington, in 1897; *C. pumila*, has occurred at Wicken Fen, Aldeburgh, etc.; *C. steini*, taken at Porthcawl, in May, 1908, by Col. Yerbury; *C. pygmaea*, from Aldeburgh and Woodbridge; *C. salinarum*, common at Butley, Suffolk; *C. trilineella*, common at Rannoch, in June, 1870; and *C. longicauda*, taken in the Lake District, in July, 1876.

In the August issue of the *Annales de la Société Entomologique de Belgique*, M. Ball discusses the various forms of *Colias palaeno*, which

species is met with sparingly in some restricted areas of Belgium. He says that an examination of the genital organs gave him no conclusive results on the observation of external characters only. He gives a table of the various named forms of *C. palaeno*, their distinguishing characteristics and the areas over which each form extends. The large form with very yellow ♂ named *europome* is the one taken in Belgium.

In the *Irish Naturalist* for July the Rev. W. T. Johnson reports the occurrence near Belfast of *Phigalia pedaria* ♀ (*pilosaria*), about February 27th, and on March 17th of *Alsophila aescularia* at Poyntypass. It appeared to us that these dates, compared with those for the present year in England, were very late. In the August number G. H. Pentland discusses the "Increase and Decrease of some Insects in the County of Louth during the last fifty years." He says that, "Ten or twelve years ago we were invaded by *Sirex gigas*. This formidable looking creature increased very fast and soon every fallen silver fir or gate post of that timber was riddled with them." He goes on to say, "Hard on the heels of the Great Wood-Wasp came his enemy. Four years ago I got my first specimen of *Rhyssa persuasoria*, the ichneumon-fly that preys on the grub of the wood-wasp. Since then it has increased wonderfully." One would like to know in what way the ichneumon found out the colony of wood-wasps after the six or eight years of immunity from attack which the latter had apparently enjoyed.

OBITUARY.

George Herbert Grosvenor, M.A., F.E.S.

By the death of George Herbert Grosvenor, who was drowned at Polzeath on September 4th whilst heroically endeavouring to save the life of a friend, the Science of Entomology has lost one of the most promising of her younger workers. Entering Harrow as a classical scholar he was equally distinguished for his mathematical ability. From Harrow he took a Biological Exhibition at New College, Oxford, and after taking first class honours in the final Science School of Natural Science, he was elected to the Oxford Table at the Naples Marine Biological Laboratory. Here he carried out a remarkable piece of research on the origin of the nematocysts in Aeolids. His paper on the subject was read before the Royal Society and he was awarded the Rolleston Prize in 1904. On his return to Oxford he undertook the organisation of the School of Economic Entomology, and having been awarded a Carnegie Scholarship had recently visited the principal Entomological Research Laboratories in the United States. Of a singularly modest and retiring disposition, his great ability and remarkable clearness of thought were perhaps best appreciated by those whose good fortune it was to be his intimates. His great success as a teacher was due not only to his comprehensive knowledge but also to his power of imparting to his pupils much of his own enthusiasm and love of the subject. Those who were present at the second International Congress of Entomology will recall the efficiency and courtesy with which, as joint secretary, he assisted in the organisation of the meeting. His name will be held in high honour no less for his life than for the manner of his death.—H.E.

Supplementary Notes from Braemar.

By RUSSELL E. JAMES.

Having failed utterly last year in obtaining *Anthrocera exulans*—the chief object of my visit to Braemar—I determined to devote my summer holiday this year to another and more prolonged visit. Correspondence beforehand with Rattray, the Invercauld keeper informed me that the season there was fairly normal, and so in order to make no mistake I fixed the time of my visit from June 29th to July 17th, thus allowing a good margin for error either end. As events proved I could not have hit the time more exactly, and the shortcomings of my 1911 visit in respect to this one species were amply atoned for; in fact I found the larva and pupa as well as seeing the whole rise and fall of the perfect insect's life—apparently a very short one.

Unlike last year, I had the whole place to myself—entomologically speaking. Mr. Horne of Aberdeen was staying lower down the Dee at Glen Gairn, and spent some days at Braemar for *A. exulans*, but otherwise I was quite alone. This being a family holiday, the pace was not quite so hot as last year, but somehow or other time was found for a very considerable amount of work, the beauties of Callater Glen and the *exulans* hill being judiciousiy impressed upon my wife and the non-entomological friends who were with us. But indeed their charms need no urging and speak for themselves. Back in the dirty city, it is best for one's peace of mind not to let the imagination run riot. One dares not think of the lunch of bread and cheese and cold mountain water (not "mountain dew") consumed at 2,500 feet up; the wonderful prospect of mountains with their snow patches; the ten minutes lounge afterwards with a pipe, while *exulans* booms round undisturbed—Well! perhaps if one had these things always they would not bring the same sense of the joy of life, but for my part I could stand a good lot of them.

On June 29th the long night journey and the morning motor ride up the Dee-side over, a hasty lunch and change, and I was off to the hills. While rowing me over the Dee the keeper said that they had had three weeks' rain and he feared *exulans* would not be out for at least a week. As I proceeded up the hill, insects that were quite over last year were in plenty and this fact, combined with the utter absence as yet of *Larentia caesiata*, so far confirmed the keeper's view, that when I walked up and netted two fine *Parasemia* (*Nemeophila*) *plantaginis* var. *hospita* I was tempted to stay. However, the sun was out on the hill, so I pushed on, arriving on the ground by 8 o'clock.

I sought for a long time, in vain, for *A. exulans*, only finding one larva and three or four pupæ. At last, however, one male appeared in a sheltered corner, apparently just out. This was all for that day, and on the following three days, although fine, the hills were in the clouds.

The morning of Wednesday, July 3rd, however, was very different, and I was off early and on to the ground before 11 o'clock. As yet *exulans* was only just coming out and was restricted to the more sheltered spots. By persistent work for some hours, seventy were taken, but another visit on the following day found them much more plentiful. The first female was taken on this day—only one—but had not the sun clouded over almost at once after my arrival, the males would have been in plenty. The great day was on the 7th. This time Mr. Horne

joined forces with me and we were on the ground early. There were still a few unemerged pupæ, but the abundance of the imago was beyond belief. They were everywhere on the mountain-top, flying when the sun shone and crawling about when the clouds obscured it. They were so abundant that we welcomed the cloudy spells, so as to save the labour of netting. Had numbers been my object, the quantity would simply have been limited by the supply of boxes, as one could fill boxes as quickly as on a good night at treacle. Mr. Horne admitted that with his big experience of the species he had never seen quite such numbers, nor struck them in such good condition. There were a fair number of females now, but practically all were sitting about paired on the grass, generally with some half-dozen males in close attendance. I found one emerging from a cocoon, and although only just the head was shewing, already quite a number of males were buzzing round her. The insect was everywhere over an area of some miles, but not in equal quantities. It occurred from the highest point of the hill, which is 2,821ft. down to about 2,100ft. It swarmed in small colonies, especially in spots where grass and bilberry predominated, with many stragglers in between, and on some of the small grassy patches of only a few yards extent, one seemed able to pick them up almost without limit. With such numbers it is inconceivable why there is no migration to neighbouring hills, which all seem to be alike, but yet have no *exulans*. The larva I found was feeding on grass, and the pupæ were spun up indiscriminately on grass, heather, bilberry and whortleberry, and one on a rock.

I only paid one more visit to the ground—on the 11th—not from lack of inclination, but because the keeper thought it was quite near enough to the shooting season not to risk further disturbance of the grouse and deer. As a matter of fact, on this last day I got quite near to a herd of red deer, counting 38 stags, and there were many others probably, just over the edge of the sky-line. On this day also I saw some ptarmigan, a fox and several hares, besides a lot of grouse. *A. exulans* was already getting over, and I contented myself with picking specimens here and there. The wind was high and they were still in vast numbers, but many were very worn. The small colonies seemed now to be broken up and the moths were fairly distributed over the whole ground, bilberry, grass, heather and whortleberry all being equally attractive. The sexes are strikingly different, the yellow legs and yellowish streaks and outlines of the spots on the forewings conspicuously distinguishing the females, but apart from this there seems little variety except in size and, to a less degree, in the density of the scaling. Moreover these yellowish markings to a great extent fade after death, and are not nearly so conspicuous when the moth comes off the setting boards as when alive. Some incline more to green and others more to blue, but I believe the variation in colour of the spots and hindwings towards whitish, described by Barrett, is entirely due to fading. These forms were quite absent on the 3rd and 4th, but plentiful enough on the 11th. A number of the females had the wings distended with fluid, but no males. One of each sex was taken with only three wings. A right hindwing was missing in each case, but otherwise the specimens were fully developed and well scaled.

But of *Psodos trepidaria*, which I also missed last year, I have a different tale to tell. I had always been inclined to discredit the

alternate year theory, but when one is led to expect it in the same numbers as *A. exulans*, and is told that by holding the net near the ground they blow in in dozens, and then by very diligent work only obtains three specimens, the theory is strongly confirmed. Rattray, the keeper, gives further confirmation. He says that last year it was flying in thousands on Ben Abord and Ben Avon and this year he scarcely saw a specimen. So I have nothing to tell of this species, beyond the fact that the three I took were walked up on the extreme top of the hill from the shortest of the heather. Some time was spent here also scratching up the lichen and moss, in the hopes of finding *Pachnobia alpina* pupæ, but two empty cases and a number of ancient and empty ones of *Psodos trepidaria*, probably dating back to past years, were all I found. It is very destructive work for the nails and finger tips, and I should think that every *P. alpina* pupa is well earned.

After *A. exulans* the insect of the year was *Parasemia* (*Nemeophila*) *plantaginis* and its var. *hospita*. This variety also surprised Mr. Horne by its numbers, as he looks upon it as a rarity in the district and actually has not a local series—his coming from the English Lake district. Seeing plenty, however, is a different thing from catching plenty, and the total capture of 39 specimens of the variety and rather more of the type, represented a great deal of hard work and not a few tumbles. A few were walked up each day, but the great majority were taken in the afternoon on the way down from the *exulans* ground. By this time they were flying wildly over the hillside, and could only be caught by sheer hard running, as they rarely settled. Var. *hospita*, from its colour, was far the easier to watch, but, on the other hand, it generally had a longer start, as it could be seen so much further off. The proportion of the variety was roughly about one to four or five of the type. The best day was the 7th, when I took three in the morning and eleven more on my way down in the afternoon, as well as about twenty of the type, by which time I felt I had done enough, and was ready for a long drink at the nearest stream. The type varied considerably in the amount of black on the hind-wings, one or two nice varieties occurring, both pale and dark. From six females taken (all typical) three batches of ova were obtained, and I am anxious to see if these produce the *hospita* form as well as the type. Two of these females have hindwings distinctly inclining to red.

Melenydris (*Larentia*) *salicata* was another species that I practically missed last year, the few I took being the merest wrecks. They were already well out this year from the beginning, but were not generally abundant. I took a few each day right on top of the *exulans* hill and a few more at dusk. But its great locality I did not find until July 15th, and by that time they wanted a lot of picking over. The place in question is a group of rocks up in the hills, about two miles west of Loch Callater. Here they swarmed, often as many as a dozen on a rock. On the grassy slopes here *Scopula alpinalis* and *Pyrausta ostrinalis* were in great abundance, and also some *Eudoria* (*Scoparia*) *alpina*, which, however, was getting over. *Crambus furcatellus* should also occur here, but I failed to find it.

On my way back down Callater Glen I disturbed my first *Larentia flavicinctata* (*ruficinctata*), and a long search near the spot on the 17th produced one more specimen. It was of course early for the species,

and I expect another week would have given me plenty. On the whole, compared with last year, things were very late. For example, of *Larentia caesiata*, which was out and getting worn upon my arrival on July 7th, last year, I only saw one the first day, and it was quite scarce for at least ten days. *Gnophos myrtillata* (*obfuscata*) did not appear until July 11th, when it rapidly became common, and *Plusia interrogationis* not until the 14th.

Other first dates were *Acidalia fumata* on the 3rd, *Coenonympha typhon* on the 4th, *Cidaria truncata* (*russata*) on the 6th, *Coremia munitata* and *Scopula alpinalis* on the 7th, *Noctua primulae* (*festiva*), *Argynnis aglaia*, and *Emmelesia minorata* var. *ericetata* on the 9th, *Boarmia repandata* on the 11th, *Cidaria populata* on the 13th, and *Metrocampa margaritaria*, *Ellopia fasciaria*, and *Halia brunneata* on the 14th. All these species were well out last year when I arrived, with the exception of *C. populata*, and mostly required picking over, so of course their lateness this year gave me the opportünity of getting them in the best possible condition.

Of *Noctua primulae* (*festiva*) I had hoped great things, but treacle was a disappointment and consequently I only took very few. Why treacle did not pay I am at a loss to understand. The more one tries to analyse the causes of its success and failure the more difficult it seems to explain. I always have been inclined to expect success when Aphides and honeydew are absent, but the wet before my arrival had very fairly cleaned off both of those hindrances, and several nights seemed perfect in the atmospherical conditions. Yet the best night only produced 40 or 50 moths all told. Of these quite half the total number were *Hyppa rectilinea* and so persistent work resulted in a fine series of this species. Treacle still further declined after the first few nights until by the 12th it was so hopeless that I gave it up for the rest of the time. The few species attracted besides *H. rectilinea* included a nice lot of rather dark *Hadena adusta*, two *Cymatophora or*, some worn *C. duplaris*, two black *Xylophasia polyodon*, *X. rurea* and var. *combusta*, very ordinary *Hadena dentina*, and one or two nice forms of *N. primulae* (*festiva*).

The willow-herb blossom, which in 1911 I only discovered on the last night, was not fully out until the last few days and, to my surprise, also proved quite unattractive. Thus night work was reduced to dusking and searching for larvæ. Of these latter I got a fine lot of *Noctua neglecta*, some *Cidaria testata*, *C. truncata* (*russata*) and *Dasychira fascelina* from heather, a lot of *C. populata* from bilberry and quantities of *Thera juniperata* from juniper. *Anarta myrtilli* and *Aricia medon* var. *artaxerxes* were frequently found by the lamp at rest on heather and all the Geometers showed a much greater inclination to sit about than to fly. One notable species in this respect was *Larentia viridaria* (*pectinitaria*). It was very plentiful and so exquisitely coloured that I could not resist taking a fresh series.

Besides finding them at night *Anarta myrtilli* were very plentiful by day, flying in company with *Phytometra viridaria* (*aenea*), which species I found right up to the tops of the mountains. The only other Noctuid of interest was a single *Acronycta menyanthidis*, which was found at rest on a pine trunk. I might also mention an instance of *Hadena dentina* flying wildly in the sunshine and looking just like *Plusia interrogationis*.

All along Callater Glen, on July 15th, *Coenonympha typhon* was in immense numbers and mostly in perfect condition, and again, as last year, *Phycis fusca* (*carbonariella*) was abundant on some burnt patches of heather. Apparently they always have these burnt patches to disport themselves on, as I learn from the keeper that the annual burning of a portion of the heather dates back indefinitely. The young grass and heather that springs up afterwards forms the best possible food for the deer, as they cannot tackle the old heather properly. Whether *C. typhon* was out when I visited the glen on the 8th I cannot say, as the weather was too dull and gusty for it to fly. The only vivid recollection I retain of that day, is a six-mile grind on a bicycle, up the broken road, with wind and hill against me, buoyed up by the thought of free-wheeling back; and then a bad tyre-burst immediately upon starting home. My companion, who had repairing tackle and knew how to use it, had gone on ahead, so there was nothing left for it but to tramp and wheel the machine. In spite of this mishap it says a great deal for the Glen that it still retained its peculiar fascination for me, and its remoteness seemed to be emphasised by the sight of two shepherds with several collies on the mountain side, bringing an immense flock of sheep down to the lower pastures. They were perhaps a quarter of a mile apart and shouted to each other and to the dogs in a language that I presume was Gaelic. Anyway, it was totally unintelligible to me, but of course the dogs understood and obeyed every word.

At the beginning of the visit *Bupalus piniaria* was very abundant among the pines. Both sexes are strikingly different from those of our southern woods—the male ground colour being almost pure white and the female a dull shade of buff, with no trace of the bright orange colour of our southern form. These rapidly became worn, but *Eupithecia satyrata* var. *callunaria* of which I took a nice lot on the first afternoon, lasted most of the time. They were very plentiful in the more sheltered spots of the *exulans* hill, preferring the parts where the heather was long, but lower down only an occasional specimen was seen. *E. nanata* was plentiful everywhere, and odd *E. lariciata* and *E. pulchellata* also occurred.

With more time at my disposal, I tried over more ground than last year, but except at Aberarder, I found no places equal to those I had already worked. I tried the country round the Linn of Dee, but it was not at all prolific. The only observation of interest made was the behaviour of a couple of wagtails just below the falls. All ronnd on the rocks *Larentia caesiata* was sitting and when at rest they were apparently quite safe, but each time one started off it was pursued and captured by a wagtail. I saw this happen three or four times in a quarter-of-an-hour, so these two birds at this rate must have disposed of a good many *caesiata* in their time.

Aberarder is some seven miles down the Dee-side and close to Balmoral, and on one of my visits the rest of the party left me, while they went over the Balmoral grounds. They could not get over the castle, as they had not acted on Rattray's advice. He said in all seriousness "There is only one person who can give you permission. You write to the King and he'll do it like a shot." However as we did not write to the King, they went over the grounds while I worked at Aberarder, where probably most of the Braemar insects occur. I

spent two or three mornings there, more especially as there are some good rough corners of meadow land, suitable for working *A. medon* var. *artaxerxes*. Each time the sky was partially overcast, or else the butterfly would have been in abundance. As it was I got a nice long series, including one beautiful obsolete underside variety. Besides the marginal spots, it has no trace of any others, except one very large one in the centre of each wing. It was quite noticeable, even in flight, and happily was in perfect condition. A fine lot of *Polyommatus icarus* were also taken here, the race being as usual in Scotland, very large and brilliant. *Argynnis aglaia* was abundant and both *Brenthis selene* and *B. euphrosyne* still in good condition, while to my surprise I came across a colony of *Cupido minima*. I did not expect to find it so far North, but Mr. Horne assures me that it is abundant in other places in the county. *G. myrtillata* (*obfuscata*) also occurred here, but I really scarcely worked the hills at all. A male *Leiocampa dictaeoides* was found on a rock, and several *Emmelesia minorata* var. *ericetata* seen on the wing. In fact, as regards numbers, Lepidoptera were as plentiful here as anywhere in the district, two very abundant species being *Tanagra atrata* (*chaerophyllata*) and *Eubolia limitata* (*mensuraria*), the latter disappointingly typical. Its near neighbour, *E. plumbaria*, seemed to have a double emergence. On my first day or two at Braemar they were plentiful, but the males worn to shreds and the females needing picking over. By the end, all this early emergence seemed to have vanished, and a fresh lot of both sexes appeared. These last were very strongly coloured and of considerably larger size than the early ones, many of which were almost pigmies. Another late species to appear was *Anaitis plagiata*, which did not occur until the 14th, and then only two specimens. It is a very nice form, much bluer in tone than the southern one, and I was sorry not to take more. I don't know what happened to *Hepialus fusconebulosa* (*velleda*). As it was worn last year, I had hoped to take plenty, but it was only seen twice, both times in the village when I had no net.

Besides the species already mentioned in these somewhat random notes, a number of common species were seen or taken, which call for no special comment. So as to make this record as complete as possible, however, I append the following list of them. *Pieris brassicae*, *P. rapae*, *P. napi*, hybernated *Aglais urticae*, *Coenonympha pamphilus* (very common), *Rumicia phlaeas*, *Lasiocampa quercûs* var. *callunae* (one larva), *Drepana lacertula* (two at dusk), *Apamea gemina*, *Caradrina cubicularis*, *Rusina tenebrosa*, *Agrotis* (*Lycophotia*) *strigula*, *Triphaena pronuba*, *Hadena pisi*, *Acidalia dimidiata* (*scutulata*), *Cabera pusaria*, *Macaria liturata*, *Ematurga atomaria*, *Emmelesia albulata* (Aberarder), *Thera obeliscata* (*variata*), *Mesoleuca* (*Melanthia*) *ocellata*, *Xanthorhoë* (*Melanippe*) *sociata*, *X.* (*M.*) *montanata*, *X.* (*M.*) *fluctuata*, *Coremia ferrugata*, *Camptogramma bilineata*, *Cidaria corylata*, *Eudoria* (*Scoparia*) *murana*, *Botys fuscalis*, *Crambus pascuellus*, *C. culmellus*, and a single late larva of *Hydriomena* (*Hypsipetes*) *furcata* (*elutata*) on juniper, which produced an almost black imago. The actual number of species, perhaps, would not compare favourably with lists compiled from many southern localities, but when the conditions are good, many of them occur in such numbers that the quantity atone for the lack of variety. A great charm of the collecting, moreover, is the amount of work that can be done by day, as when conditions are otherwise impossible, there is always such good

rock and trunk searching. For the second time, however, I have had remarkably good fortune in weather. During the whole eighteen days, only one was wet and on only two other days did we have any rain at all. It is true that on several more days the low clouds made it impossible to work the hills, but on the other hand, most of the sunny days were also still—the best possible conditions for mountain work.

We left on the afternoon of the 17th, breaking our journey at Newcastle and then putting in a couple of days' collecting at York on the way back, and after this second experience, I eventually arrived home more than ever in love with Highland collecting.

A Note on certain British species of the Coleopterous genus Lathrobium, Grav.

By W. E. SHARP, F.E.S.

It may be within the recollection of such readers of this Journal as are Coleopterists, that some years ago Mr. Donisthorpe published in its pages a paper on some of the black species of our *Lathrobia*, correcting thereby errors of nomenclature then prevalent among British students. (*Ent. Rec.*, xv., p. 180.) Recent investigation into the subject, and correspondence with foreign authorities on the group, have induced me to believe that Mr. Donisthorpe's note requires some slight modification to bring our nomenclature into accordance with that now generally accepted on the continent.

Thus, in the note referred to, Mr. Donisthorpe rightly showed that *L. punctatum*, Zett., given in Fowler's *British Coleoptera* (Vol. II., p. 301) as a synonym of *L. fovulum*, Steph., is really entirely distinct from that species, but his further conclusion that *L. atripalpe*, Scriba, should be deleted from the British list, all supposed examples of it being referable to *L. punctatum*, Zett., further research has shown to be erroneous.

To completely satisfy ourselves as to *L. fovulum*, Steph., Mr. Donisthorpe and myself have together recently examined the type of that species in the Stephensian cabinet in the British Museum, and we are left without a doubt but that the species described by Fowler as *L. punctatum*, Zett., and previously known to British collectors under that name is really the *L. fovulum* of Stephens.

To make the matter clearer, a short tabular abstract of the salient differences between the species under discussion may not be out of place.

1. Thoracic punctuation strong, remote, and subseriate, with broad smooth space in centre .. .. .. *L. fovulum*, Steph.
2. Thoracic punctuation weaker, uniform, confused and close, with narrow smooth space in centre.
   - i. Elytra much longer than thorax, legs always dark .. .. *L. quadratum*, Payk.
   - ii. Elytra only slightly longer than thorax, elytral punctuation weak, legs variable in colour
     - A. Elytra with apical testaceous spot, legs lighter .. .. *L. terminatum*, Grav.
     - B. Elytra immaculate, legs darker .. var. *atripalpe*, Scriba.
   - iii. Elytra hardly as long as thorax, elytral punctuation strong, legs pitchy .. .. .. *L. punctatum*, Zett.

L. fovulum, Steph., besides the very characteristic punctuation of the thorax, has a peculiar greenish sheen on the elytra, which the

others lack, and its range appears to be southern. I have taken it not uncommonly in dead leaves near Brockenhurst and seen specimens from Wicken, the Isle of Wight and other southern localities.

L. quadratum, Payk., is the largest and stoutest of the species under discussion and its comparatively very long elytra readily separate it from any of them. It is not a very common species, but is widely distributed, and I have taken it as far north as Glasgow.

L. terminatum, Grav., is certainly the commonest of these species and the more or less distinct apical light spots on the elytra easily distinguish it, the legs are rather variable in colour but are usually of a clear reddish testaceous. It appears to be distributed over the entire kingdom, and I have taken it as far north as Inverness-shire and as far west as Co. Clare.

var. *atripalpe*, Scriba. This form, although originally described as a species, is now generally, and one cannot but doubt rightly, regarded as merely a melanic form of *L. terminatum*. The colour of the palpi, from which it takes its name, is in no sense distinctive, and except in the absence of the elytral spot and the general darker colour of the legs it differed in no respect from the type. The var. *immaculatum* of Fowler is virtually synomymic with it, but if it be desired to retain the Fowlerian name, var. *immaculatum*, Fowler, might be reserved for the form with clear testaceous legs such as the type usually possesses and which is more prevalent in the south and midlands of England, and var. *atripalpe*, Scriba, for that with darker, sometimes almost black, legs, which is frequent in Ireland, Wales, the North of England, and abundant in many localities in Scotland.

L. punctatum, Zett., can be recognised by its very short, coarsely and closely punctured elytra and broad thorax; the legs are always dark. It appears to be the rarest of this group, and confined to northern and mountainous districts. I have taken it on Ben Lomond, and Mr. E. C. Bedwell has a specimen from the same mountain. Mr. F. H. Day takes it sparingly on the mountains of Cumberland, and I have seen a few other specimens in Scotland, but I know of no English record south of Westmoreland.

In conclusion I must acknowledge in the preparation of the above notes the valuable assistance of the late Herr Ganglbauer, of Herr J. Breit, and of Captain St. Claire Deville.

Notes on some of the Lepidoptera of the "Breck" District.

By Lieut.-Col. C. G. NURSE, F.E.S.

The paper by the Rev. C. Thornewill in the October number of the *Entomologist's Record* tempts me to take up my pen and write what I know of some of the species mentioned by him. Many of them I have known from boyhood, now, alas, over 30 years ago, and as I have been for the past six or seven years living on the edge of the "Breck" country, my knowledge of some of the insects is "extensive and peculiar." I believe all, or nearly all, the species referred to by Mr. Thornewill are somewhat periodic in their appearance, more so than is the case with the majority of the Lepidoptera. I shall give instances that have come under my notice as regards this when I refer to each species.

To take the insects in the order in which they are mentioned by Mr. Thornewill. *Dianthoecia irregularis* occurs over a fairly wide area, but its presence is, of course, dependent upon its food-plant, *Silene otites*, being able to flower and seed. This plant grows in certain places by the roadside, on waste ground, and on sheep runs at wide intervals over part of the district, but in order to obtain the larvæ of *D. irregularis* it is necessary to find a place where the plant has not been grazed off during its flowering stage by sheep or cattle. When such a place is found, larvæ may be obtained in numbers by sweeping, but nearly all are small, and in my experience about 90 per cent. are ichneumoned. Occasionally large larvæ may be seen or swept, or found underground at the roots of the plant, and these, though few in number, are not difficult to rear, as they will eat almost any kind of *Silene* or *Lychnis*. I have never tried working for the imago, but it may be taken occasionally at rest, or flying over the food plant at night, and it is said to come to light. *D. irregularis* is less uncommon in some seasons than in others; last year (1911) was an unusually good year for the larvæ, though from over 200 I only got two dozen pupæ, and from them I bred a little over a dozen moths. Some of the remaining pupæ may be still alive, and the moths may emerge next year. The first fortnight in July is the best time to obtain the larvæ; late larvæ are almost all ichneumoned.

Agrophila trabealis (*sulphuralis*) is perhaps the most periodic of any of the local species known to me. In some seasons it is quite abundant in suitable spots, while in others, on the same ground, it is almost entirely absent. About five years ago I came across the insect in considerable numbers, and might have taken dozens, but since then I have never taken more than half-a-dozen in a season, and during the present year (1912) I came across only one worn specimen. Barrett says it is double-brooded, but I very much doubt the correctness of this. It occurs usually from about June 20th to July 10th, though an occasional specimen may appear earlier or later. I may mention that I have taken the species in some numbers in Baluchistan, and the specimens obtained there are much more variable than is the case with British specimens.

Acontia luctuosa occurs all over the district, but not usually in numbers. There is a spot near my house where I found it five years ago; for three years I looked for it in vain, but this year it again appeared in some numbers in the same place. It is double-brooded, and I think that both broods appear in about equal numbers.

Acidalia rubiginata (*rubricata*) is another double-brooded species, but I have always found it more numerous in the second brood than in the first. Although I know several spots where it is to be obtained at the right season with more or less certainty, I had been collecting constantly in the district for six years before I found, in August 1912, a spot where it was in considerable numbers. The difficulty was not to capture specimens, but to obtain them in a fair condition for the cabinet, as the great majority were either worn or faded. I believe this species fades at once when exposed to the sun; on a cloudy day a fair proportion of those obtained, if freshly emerged, show less signs of fading than if taken on a sunny day. The specimens do not fade when in the cabinet, and I have one taken in 1896 which retains its beautiful fresh colour. I strongly suspect that its food-plant in this

country is *Erigeron canadensis*, as I have never found it on ground from which this plant was absent. It was entirely owing to my noticing the abundance of this plant that I hit upon a spot where the insect was in good numbers this year. I hope to make further investigations with regard to this another year. I have always found the best time for *A. rubiginata* to be the first fortnight in August, though I have taken occasional specimens from early in June to the end of August.

As regards *Lithostege griseata*, I am sorry I did not know that a brother entomologist was in the neighbourhood this year, or I could have shown him a place where he could have obtained as many in a day as he seems to have captured in five weeks. The best time to get the insect in good condition is from about May 25th to June 10th. The foodplant, *Sisymbrium sophia*, occurs everywhere in this district, but not so the insect. I was some time before I hit upon a spot, but I have usually found the insect in some numbers where it does occur. The difficulty with this species is to obtain it without doing damage to crops, as it is chiefly to be found among the growing corn. I am always very careful to avoid doing damage, from a sense of justice to the farmer, with the result that I am able to go anywhere without being "warned off." My specimens are usually obtained by walking along the edge of a cornfield, or in a clover field where the foodplant occurs. In some seasons the larvæ may be obtained in good numbers, but it is not a very easy insect to rear, a large proportion of the pupæ drying up. Moreover, it frequently, perhaps usually, lies over two winters. From nearly two dozen larvæ obtained in 1910 I only bred two imagines, and they emerged in 1912. Like Mr. Thornewill, I have found that among captured specimens, females usually predominate. I have not bred sufficient to judge whether more females emerge than males, but I believe this to be the case with many species. However, that is another story, and I hope some day to place on record my experience regarding the proportion of the sexes obtained by breeding.

Of *Spilodes sticticalis* I know less than of the species enumerated above, but I have taken it occasionally, chiefly in August. It occurs on the same ground as *A. rubiginata;* the foodplant is given as various species of *Artemisia*, but I never worked for the larvæ. *Artemisia vulgaris* occurs freely on the edges of some of the fields where I have obtained the insect.

Orobena extimalis (*Pionea margaritalis*) seems to be rare in the district, as I have only taken a couple of specimens, excluding a worn example that I released. One of them I captured within half a mile of my house; there was plenty of wild mustard where I found it, but, though I tried for the larvæ later, I entirely failed to find any. The remaining species mentioned by Mr. Thornewill can scarcely be considered among the specialities of our district, as they occur in many other places, and though I have taken them, I have not given them any special attention.

The Value of Protective Resemblance in Moths.

By the Rev. A. T. STIFF, M.A.

In the July-August number of the *Ent. Record* there was a most nteresting article, under the above title, from the pen of Lieut.-Col.

N. Manders. The questions specially discussed by the writer were how far moths are liable to the attacks of birds; and whether, if such attacks produce a serious struggle for existence, the value to the moth of protective resemblance is such as to account, through natural selection, for such changes of pattern or colour as may have produced, in the course of generations, a harmonisation of the moth to its normal surroundings.

Now I think there cannot be the smallest doubt that many species of birds do prey upon both moths and butterflies. The fact must surely be sufficiently familiar to the most casual student of nature. I have repeatedly seen Sparrows chase and capture the "Whites," and Swallows stoop at the same butterflies, and also at *Gonepteryx rhamni*. Only this summer I watched three Swallows, one after the other, capture and drop again a specimen of *Spilosoma lubricipeda*, which I had disturbed during the daytime. Ultimately it made its escape into some ivy, and I concluded that either it was too large for the bird's gape, or else distasteful to their palate for some reason. Nightjars and Flycatchers catch moths by night and day respectively, and I have found the wings of butterflies in the castings of Kestrels, and of moths in those of Owls. Similar instances might be multiplied *ad infinitum*.

But all this, though without doubt it has its bearing on the problem of mimicry, has none at all on that of protective resemblance. To have any bearing on the latter it must be shown that birds and reptiles capture moths or butterflies at rest, and not during flight. To quote Lieut.-Col. Manders, "The capture of an odd specimen here and there by a sparrow or other bird, though a matter of almost daily observation during the summer months, can have little or no effect on the general moth population, and certainly none in the production of a protective colouring by means of natural selection. What is required is a hunt for some bird or birds which make moths a speciality in their dietary, and which show under natural conditions a marked preference for certain species." I am not quite sure that too much importance ought to be attached to the last condition, as when one considers the large number of insectivorous birds, and the enormous quantities of insects each pair brings to its nestlings during the breeding season, one can easily believe that the fact that any of them preyed habitually on moths at rest might tend, in the course of ages, to promote, by natural selection, protective resemblance in several different species.

Now it is my firm conviction that some birds do prey on moths and butterflies, even when at rest. I have frequently seen and captured both moths and butterflies with a clean-cut, triangular fissure in one or more of the wings, quite different from the irregular frayed tearing which is produced by contact with brambles or thistles in windy weather; and I have always been inclined to attribute such gaps in their wings to their having been seized by birds, and having made good their escape with the loss of that portion of the wing actually laid hold of by the beaks of their would-be devourers. So far, of course, there is nothing to show whether the injury was inflicted upon the insects when in flight, or at rest. But I have also frequently come across cases in butterflies, and among the Geometers, where gaps exactly corresponding both in size, shape, and position, existed in the wings on both sides. Now assuming the injuries to

have been caused by a bird's beak, they could only conceivably have been caused by the insect having been seized in its natural position when at rest, *i.e.*, with its wings held together vertically over the back.

I do not imagine, however, that the question will ever be decided by the work of one individual. Life is too short, and the opportunities of observation too limited. It will, I believe, only be by the united observations and records of many workers, carefully pieced together, that a full solution of the problem will ultimately be arrived at. And it is with the object of contributing my mite of evidence, and in the hope of provoking further discussion, that I should like to record one or two facts which have actually come under my own observation.

Upon one occasion in Cornwall I managed to cultivate such friendly relations with a pair of Blue Tits (*Parus caeruleus*), that they continued to feed their young ones undisturbed by the fact that I was sitting within a couple of yards of the hole in a stone wall wherein was their nest. I remained watching them for at least an hour, during which time the male bird visited the nest with food on an average once every two minutes. The hen was rather shy at first, and would not come nearer than the boughs of an oak tree above my head, but ultimately she gained sufficient confidence to take her share in the task of feeding her nestlings. Their happy hunting-ground seemed to be this oak, and one or two others which grew near by, and the chief food they brought was small green caterpillars—probably the larvæ of *Cheimatobia brumata*—but they also brought a good many imagines of the green Tortrix, *T. viridana*. Now these must undoubtedly have been secured when at rest, and undoubtedly, also, their close agreement in colour with the oak-leaves would be of service to them for purposes of concealment.

Again, during July and the first week of August, 1905, when staying in a bungalow in the middle of Dartmoor, I used frequently to watch the doings of two young Cuckoos, and their attendant foster-parents, which were in both cases Titlarks or Meadow Pipits (*Anthus pratensis*). One of the young Cuckoos, though so late in the year, was still quite unfledged, but the other seemed to be nearly full-feathered, and frequently settled on the fence around the bungalow, and on a tall forked stick which stood up in the field behind. It used to settle on the very top of the longer side of the fork, and the foster-parents, having vainly tried to feed it from the other extremity, which was much shorter, at last adopted the plan of perching on the young Cuckoo's shoulders, and feeding it from thence. The Cuckoo would bend its head back between its shoulders, and the Titlark would reach over and put the morsel in its open beak. It was a sweetly pretty sight, and I frequently regretted the absence of a camera, as I should have much liked to photograph it. But the point of special interest is this, that on two occasions when I was watching, owing to some mismanagement on the part of the birds, the prey escaped and fluttered away, though the Titlark in both instances pursued it in the air, and ultimately captured it. In both cases the insect was a moth, and in one case when I was quite close to the birds and watching through my field-glasses, I was able to identify the species with absolute certainty. It was *Melenydis didymata*, as I am nearly certain it was on the other occasion also. Now *M. didymata* simply swarms at dusk over the heather near the bungalow during the last week in July and

the beginning of August. I have seen it flying in thousands at dusk, but never on the wing by day. A few may be found settled on the stone walls, but the greater number seem to rest with wings partially outspread among the stems of the heather, where they are very difficult to see. They generally drop when disturbed, but may occasionally be beaten out of the heather by day. I think, therefore, that there can be no doubt that the moths in question must have been captured by the Pipits when at rest, and also that their resemblance to the brown interlacing stems of the heather must be of great service in evading discovery. Of course, the point which remains to be cleared up is whether the young Meadow Pipits would have accepted *M. didymata* as an article of diet, as one can scarcely imagine that the number of Pipits with Cuckoos as foster-children would be sufficiently numerous to cause any struggle for existance to so common a moth as *M. didymata*, though, on the other hand, protective resemblance may to some extent account for its numbers.

I think that these two instances go to prove that certain birds do search for, and prey upon, moths when at rest, though I agree with Lieut.-Col. Manders that movement is more immediately fatal to them. But even in the case of an insect which first attracts the attention of a bird or reptile by movement, it is at least conceivable that protective resemblance might still be of service to it. In the spring of 1901, while waiting for a steamer at Argegno, on the Lago di Como, my attention was attracted to three large brown lizards which were absolutely motionless on the trunk of a tree. So well did they harmonise with their environment that I only discovered the first by accident, and the other two by very careful scrutiny. (By-the-bye, I should certainly imagine that this was a case of aggressive resemblance, as the little lizards so common among the leafy walls on the lake-side were green and grey, and the larger hedge lizards a vivid green.) While I was watching them a large bluebottle-fly alighted on the trunk about eighteen inches from one of them. The reptile immediately became convulsively active; there was what I can only describe as a wriggly brown flash, and the fly was gone—doubtless to the entire satisfaction of the lizard! Now the fly was absolutely distinct on the bark of the tree, but is it not at least possible that in the case of an insect which, upon alighting, so harmonised with its environment as to become practically indistinguishable from it, the lizard might have so miscalculated a rush of eighteen inches as to have alarmed the insect without actually capturing it?

Switzerland and the Black Forest.

By DOUGLAS H. PEARSON, F.E.S.

There will no doubt be wails from disappointed butterfly hunters this year, owing to the wet and sunless season, so a few notes from one who was more fortunate may be cheering. Stirred up by Mr. Warren's description of Freiburg in Breisgau, we found ourselves there on the morning of June 27th, having gone straight through from London, and in the afternoon set out for the Moss Wald, with visions of Emperors galore. We saw very few, but were more fortunate on the next day, and managed to take a short series of *Apatura iris*, *A. ilia* and var.

clytie, though none of them were abundant and no females were seen. *Polygonia c-album* was fairly plentiful and *Limenitis sibylla* not uncommon, but, as usual, difficult to catch, and we took one worn specimen of *Nordmannia* (*Thecla*) *acaciae*. The thistles by the road-side were swarming with insects, among which were some fine *Dryas paphia* and a few *Melitaea maturna*, but even the females of the latter were in a hopelessly worn condition. In a field some very yellow forms of *Epinephele jurtina* were taken, but we failed to turn up either *Limenitis populi* or *Pararge achine*.

The next day we took train to Hinterzarten and were soon at work on the mosses. *Coenonympha typhon* was not common and was slightly past its best, but *Colias palaeno* var. *europome* was in fine condition and, as though the lowland air had sapped its energies, was absurdly easy to catch compared with its high dwelling brethren. *Brenthis selene* was fairly common, but we did not find *B. pales* var. *arsilache* and were probably too early for it. We picked up stray specimens of *M. dictynna*, *M. athalia*, *Chrysophanus hippothoë*—with very rich purple suffusion—*Aphantopus hyperantus*, so small and dark that we thought we had lighted upon that treasure, *Coenonympha hero*, and some very richly marked *Erebia stygne*. We should probably have done well had not rain set in about mid-day and spoilt the hunting. At night the rain came down in torrents and we moved on next day to Weesen on lake Walensee, and stayed for a week at the comfortable little Hotel Speer near the station.

For the next three or four days the sun hardly appeared, but when it was not actually raining, we picked up odd insects from the grass and filled in our time with botanizing.

On July 5th we managed at last to get a sunny day and made the most of it in the marsh, our principal quarry being *Lycaena arcas* and *L. euphemus* for which the marsh is famous, but neither species was really plentiful, and it required hard work to get together a decent series. A few *L. arion* were flying with them and some resembled the *L. euphemus* so closely that they are difficult to distinguish except by the undersides. The males of *C. typhon* were mostly worn, but the females were in good condition and showed a nice variation in colour and spotting. *Leptosia sinapis* was plentiful and in good condition, and we picked up a few *Loweia dorilis*, *Erynnis altheae*, *Plebeius argus*, and other small fry, and one *Hyloicus* (*Sphinx*) *pinastri*, from a tree trunk in the marsh. A visit to Obersee did not produce much except a specimen of the fine Tiger, *Pericallia matronula* and a few very well marked *Erebia ligea*.

On July 7th we moved on to Pontresina and stayed there until the 20th. Our best capture here was *Brenthis thore* of which we took three specimens in the wood leading to Muottas Pontresina, and saw others, but the ground was so exceedingly difficult that we failed to take them. On the open ground above, *Colias palaeno* was flying freely and we took a bleached form of *Erebia lappona*, which looked very ghostlike on the wing. On the way up the Piz Languard—which is a glorious point of view—we took a good series of *Erebia gorge* var. *triopes*, and a few of the type with them, while on the same rough ground were *E. glacialis* with its ab. *pluto* and a few *Melitaea cynthia*, male and female. Near the Morteratsch glacier we took a few *Vacciniina optilete*, but failed to find *Aricia donzelii* though we carefully

worked likely spots for it. *Coenonympha satyrion* swarmed everywhere and on the Muottas Muraigl *Pontia callidice* was abundant and in good condition. On marshy ground near the Val del Fain, *B. pales* was plentiful and variable, one very richly marked specimen approaching var. *arsilache* being taken and a few of the purple-shot var. *napaea*. *Polyommatus eros*, *Albulina pheretes* and *Latiorina orbitulus* were not uncommon. The Roseg Valley produced *Parnassius delius*, *E. mnestra*, *Melitaea parthenie* var. *varia* with a nice form of the ♀, and a few *M. maturna* var. *wolfensbergeri*.

We made two excursions to Campfer in the hope of finding *B. thore*, but were disappointed, and on our second visit were caught in a drenching storm, which put an end to collecting. The ground here seemed exceptionally rich, and insects swarmed to such an extent that it was difficult to select and follow the one wanted. We took *Hirsutina damon* var. *ferreti* with undersides coloured like *A. donzelii*, *B. ino*, *Erebia evias*, *E. goante*, *E. mnestra*, *P. c-album*, *Chrysophanus virgaureae*, *C. hippothoë* and var. *eurybia*, and other things, but failed to find *B. pales* var. *arsilache* in the marshy ground near the lake.

A huge new hotel is in course of erection, and the ground is noted as being worth another visit.

We met with a number of *Parasemia plantaginis*, and curiously enough most of those netted were of the var. *hospita*, with white ground instead of yellow.

The weather was glorious during most of the time we spent at Pontresina, the few storms we had in the evenings only serving to lay the dust and cool the air, and we came home with well packed store boxes and the impression that 1912 was a good entomological year, but heard that the day after we left Pontresina there was a fall of snow and a general break-up of the weather.

Notes on the Season. Rhopalocera.

By S. G. CASTLE RUSSELL.

I cannot say that I have experienced a successful season this year, as owing to the want of sunshine my opportunities for field collection were few, notwithstanding the fact that I had arranged to devote three full days per week for outdoor work during the season, and a whole month in August. After the middle of July and up to the end of August the days I selected for excursions were without exception either wet or sunless and very windy. The absence of butterflies on the wing was quite remarkable, and one wonders what the effect will be as regards next season, as opportunities for copulation must have been greatly curtailed, and in the latter part of the season very heavy rains must have occasioned great mortality even among freshly emerged specimens.

The following weather record made by Mr. Edwards of Salisbury, and applying to that district, is interesting, and shows that the summer of 1912 was not much worse than several years preceding it, so far as the rainfall is concerned, but as regards consistent absence of sunshine I certainly think that 1912 excelled all previous years that I can remember.

Mr. Edwards' rain guage reads thus:—

June.		July.		August.	
1909.	5·80	1909.	3·13	1909.	3·09
1910.	5·84	1910.	2·21	1910.	2·03
1911.	1·50	1911.	·05	1911.	·05
1912.	4·61	1912.	1·50	1912.	6·94

I remember that in 1910 nearly all the summer week-ends were wet or dull, occasionally we did get a sunny day during the week, but this year, after Ascot week, I do not recollect even one real hot summer day. The only summer that compared with 1911, so far as my notes show, were in 1887, 1893, 1895 and 1897. I shall never forget 1893, as the sunshine was practically continuous from March, until the end of August, 1895 rivalled it and was said to have created a record for sunshine.

These remarks and weather records, although not of entomological interest, may be of use as shewing the effect of a cycle of wet summers upon butterfly life, and we older entomologists are always remarking upon the scarcity of the Rhopalocera in recent years. That there is a scarcity I think it is generally agreed, but the cause is difficult to explain. To return, however, to matters entomological, in late April and during May the weather was all that could be desired, and having determined to devote the season to renewing the somewhat old series of "blues" in my cabinet, I made excursions to the various chalk downs.

A journey to Surrey for larvæ of *Agriades thetis* on April 22nd, proved too late, five only could be found, the majority having apparently gone down for pupation. On this occasion a few *Euchloë cardamines* and *Celastrina argiolus* were seen on the wing, and signs generally showed that the season was more than a week in advance. A visit on April 28th to Horsley, found *Nisoniades tages*, *Hesperia malvæ*, *E. cardamines*, *Callophrys rubi*, and *C. argiolus* plentiful, and a few larvæ of *Polyommatus icarus* were taken off *Lotus corniculatus* in full-fed condition. On May 11th, a visit to Monk's Wood with my brother, Mr. A. Russell, for larvæ of *Strymon pruni* was quite unproductive, but I was rewarded by taking a pair of *Pararge megaera in cop.*, the result of which enabled me to renew my series of that species to great advantage. *S. pruni* seems to have almost disappeared from Monk's Wood, either from the efforts of beaters, or from some other causes, and this is in spite of the fact that the wood is much more rigidly preserved than formerly, and access is not readily given. The blackthorn plantations that produced the larvæ so plentifully some years ago have become an impenetrable forest. I have found the same scarcity in other localities for this species, and personally I ascribe the cause to ichneumons. The species like all the other *Ruralidae* (*Theclidae*) seem to be either very common or very scarce. On May 19th, a visit to Horsley produced many beautiful "blue" forms of *P. icarus*, one taken by Mr. Frohawk being particularly striking in colour and brightness. We both remarked that we had never previously seen such an abundance of defined "blue" forms, but they were confined to one field.

With Mr. Frohawk a visit was next made to Ranmore in the afternoon, when *P. icarus* were found to be well out, the "blue" female

forms not, however, being so marked or plentiful, and *A. thetis* was just appearing. A further visit on the 21st found *A. thetis* common, the females being distinguished by the large proportion of specimens shot with blue. Again these blue forms were confined to one field, and I found them much less plentiful in other spots of the Dorking range. In the afternoon I was fortunate enough to capture a freshly emerged male of a pale lilac-blue colour, which I assume is the aberration known as *pallida* and is a hybrid between *P. icarus* and *A. thetis*.* In every point except the colour the specimen has the characteristics of *A. thetis*, the colour, however, approaches more the shade of *Agriades coridon* than of *P. icarus*. As regards the females of *A. thetis*, I found that in all other localities that I visited in Kent and Surrey, the brown form predominated, few being of the shot-blue form and none well defined. A visit to the Denbies on May 25th showed *A. thetis* well out and fairly plentiful, but the females were of ordinary type, "blue" forms not being striking and scarce.

The next three excursions were devoted to the Surrey downs in search of common forms of *A. thetis*, but without success. Generally I found that this species was not so common as in former seasons, and the wind was now beginning to become violent and the sun shy. A hunt was made for larvæ of *A. coridon*, but only in one locality was it found at all, and here it was extremely abundant. A fine series were bred from these larva, one or two underside varieties being obtained. Visits were next paid to various Kent localities, more especially around the Maidstone range of Chalk hills, but the weather conditions were unfavourable, and all the "blues" except *C. argiolus* were very scarce. A visit was paid to Horsley with Mr. Frohawk in search of *Cupido minimus*, which was found plentifully on June 9th, together with *P. icarus*, but a keeper interfered with our business and we had to find other pastures. Mr. Frohawk had a scientific argument with the keeper, but it was ineffective, even when he gave forth of his great knowledge on birds.

From June 28th to July 1st was spent at Witherslack in company with Mr. Frohawk and my brother. Here again we had to put up with very indifferent weather. *Coenonympha typhon* (*davus*) were common, but mostly worn, on the mosses, but we each managed to get a very fair series of perfect specimens, and on the one morning when the sun gave evidence of its existence, *Aricia medon* var. *salmacis* were seen and obtained in considerable numbers in the pink of condition. We had arranged for a carriage to convey us to Grange Station on the Monday in time to catch the fast train to London, but the driver turned up over half an hour late, and we had to put up with the next best train, entailing a long wait at Carnforth. During the whole day heavy rain came down without intermission, and we had the consolation of knowing that we had not erred in deciding not to stay another day at Witherslack, which we had thought of doing when the trap arrived too late. *P. icarus*, male and female, were out, but scarce; the males were large and of a very bright blue, but I noticed nothing very remarkable about the females; the undersides of both sexes were well defined, much more so than in the southern form.

* Most unlikely. The blue colour of nearly all the Lycænids is subject to very wide variation. To what form of hybridisation could the leaden coloured specimens found in several species be attributed?—G.W.

Mr. Frohawk took an unusual form of *Coenonympha pamphilus*, the interesting feature being two well-defined dark bars on the underside. On July 7th a visit to Newland's Corner was paid, the day being a very fine one; *Argynnis aglaia*, *A. adippe* and *Epinephele jurtina* (*ianira*), *Aphantopus hyperantus*, etc., were in evidence, and I saw one *Colias edusa*.

On July 11th an excursion was made into Kent for *Aporia crataegi*, but without success, although the day was hot and sunny. On July 14th a journey was made into north Hampshire for *Plebeius argus* (*aegon*) and *Hipparchia semele*: the former was fairly plentiful (although not so common as usual), but *passé*, fresh examples being scarce. *H. semele* had not yet appeared except in singles, nor, in fact, did this species, which is usually very abundant in this district, occur in any plenty when later visits were paid. *E. jurtina* was very common, and I took two freshly-emerged bleached forms, one having the greater portion of the left primary wing quite white, and the other having part of the left secondary white.

In early August visits were paid to various Surrey and Hertfordshire localities for *A. coridon*, which generally were not so abundant as I have usually found them. Shortly after this the weather broke up, and a visit to Swanage on the 28th met with unfavourable weather, a regular gale of wind and absence of sun being in evidence. In the sheltered parts of the Downs, when a few sunny intervals occurred, *Melanargia galatea*, *Thymelicus acteon*, and *E. jurtina* were abundant and in good condition, *A. aglaia* were fairly plentiful, but in bad condition. A few *A. medon* (*agestis*) were seen, together with *P. icarus*, but *A. coridon* was represented by only two specimens. From Swanage I journeyed on to various localities on the Wiltshire Downs, but butterflies were scarce, and *A. coridon*, which I expected to find in some abundance, was very uncommon, and not yet in full emergence. Another visit was paid to the same localities later in the month, but with no better result.

On August 25th a visit was paid to the Ranmore slope, and *A. thetis* was found in fair numbers, together with *E. jurtina* and a very few *P. icarus*, but as usual I suffered from want of sunshine. This was practically my last excursion, as the continual bad weather began to get discouraging. The autumn brood of *P. icarus* I found very scarce, and *A. medon* (*agestis*) almost non-existent. My special quest of the "blues" confined my work largely to the Chalk downs, and I did not get much experience of the wooded districts, but such as I did have, gave very poor results after early June, and apparently most species of butterflies were scarcer than usual. Mr. Grosvenor, in his very interesting notes to the *Ent. Record*, remarks that he found variation in butterflies this season remarkable by its absence, and my experience was practically the same, with the sole exception of the blue females of *P. icarus* and *A. thetis*, which, as noted, occurred in a restricted locality. As regards variety, it will be very interesting to note the result of this bad summer on the butterflies of next season, but the season has been remarkable, more for absence of sun than rain, I think.

COLEOPTERA.

THE FOOD-PLANTS OF APION ANNULIPES AND SUNDRY OTHER BEETLES. —In August, last year, I swept a few isolated specimens of *Apion annulipes*, Wenck, off Thyme on Ditchling Beacon. Later in the year one or two more were brushed from herbage in the field adjoining the garden. In the latter locality there was apparently no Thyme. In the immediate district of the Beacon there is no *Origanum vulgare*, but it may be found in profusion a mile or two off at Pyecombe. Knowing this to be the plant which *A. annulipes* has of late years been found on, I gave up many hours to working it most thoroughly. No *Apion*, however, rewarded my efforts, but I discovered *Longitarsus pulex*, Schrank, a typical thyme species very much at home on the Marjoram as was *Chrysomela polita*, L.

This August on again sweeping stray *A. annulipes* in our garden field, I made a determined effort to localize it to some particular plant. Having given careful attention to various *Labiatae*, I ultimately found that the *Apion* was attached to *Prunella vulgaris*. By carefully tapping the plants over paper a nice series of males and females was taken. That this very rare weevil should have as one of its food plants such a prolific and wide-spread meadow-weed as *Prunella* is particularly interesting.

In early September, by beating the capitula of *Centaurea nigra*, I found both *Apion onopordi*, Kirby, and *Orchestes pratensis*, Germ., not uncommonly. These seem notes of confirmatory importance, particularly the latter. *Orchestes salicis*, L., was seen on the Dwarf Sallow, *Salix repens*, at Tilgate Forest in late September, *Longitarsus atricillus*, L., in great abundance, and *L. ochroleucus*, Marsh, rarely, were swept from a field of Sainfoin, *Onobrychis sativa*. In reference to the last species, Mr. J. R. le B. Tomlin's note in the November number of the *Ent. Mo. Mag.*, was of much interest to me. On September 19th I swept this Halticiid in small numbers from *Senecio vulgaris* near Brighton.—HEREWARD C. DOLLMAN (F.E.S.), Hove House, Newton Grove, Bedford Park, W.

SCIENTIFIC NOTES AND OBSERVATIONS.

NOTES ON LUPERINA NICKERLII VAR. GUENEEI.—The female of this species lays its eggs in small patches on the Sea Hard Grass, *Lepturus incurvatus*. The young larvæ emerge in about twenty days, and are then of a dark flesh colour with large black heads. They bore a hole in the stem, but wander a little before doing so, and therefore do not all get into the same stem. They stay in the stems until about February, when they have grown too large. A sort of loose cocoon is then formed on the roots, and within its shelter the young larvæ eat away, go a little farther and do the same, until they are full fed, when they make a long flimsy cocoon of silk and sand grains, often over two inches in length. The cocoon is always mixed up with grass, probably for strength. As the larvæ grow larger they become lighter in colour, but keeping quite a flesh colour until near the time for pupation, when they go yellowish to dirty white, with sometimes a tinge of green. No doubt the early season of this year has made the larvæ

pupate earlier, for on July 9th, when I expected to get half-fed larvæ, I could only find some half a dozen full fed ones and two cocoons with contained pupæ. Apparently they have been nothing like as common this year as they were last, when I could have obtained six times as many in the same time that it took me to find these nine.—T. A. Baxter, St. Anne's-on-Sea. *July 9th.*

Habits of Tricopteryx viretata.—In our searchings for *T. viretata* we several times came across a green form. The species is a somewhat unsatisfactory insect for several reasons. When its wings are closed and it is resting on a holly-trunk, which in our experience is its usual resting-place, the specimens look in good condition, but when you set them without the hind-wings to back them up they do not look nearly as well. Again some of them, more especially the green form, as soon as you look at them (and they are instantly lost in the changing shadow) slide sideways off the trunk, others sit till boxed as quiet as need be, while some will even sham death. There are hardly enough specimens seen to teach one what to expect, so different is the behaviour of different individuals. In the cabinet drawers the green form turns much blacker as time goes on, till it has made me wonder if melanism is taking place with them as with other species.—F. Fountain, 191, Darwin Street, Birmingham.

NOTES ON COLLECTING, Etc.

Coleophora artemisiella.—With regard to this species, it is a good many years since I paid any attention to it. My experience quite confirms the statement as to the difficulty of rearing the insect away from the saltings and the great mortality among the larvæ. I find that in 1891 (my best year) I bred fifteen specimens, and have little doubt but that the larvæ were wintered in a large flower-pot fully exposed to the weather.—F. G. Whittle, 7, Marine Arcade, Southend. *October 20th.*

Notes of the Season.—At Halling, on August 18th, among a scattered growth of *Helianthemum*, Rock-rose, I obtained a few specimens of *Mompha* (*Tinea*) *miscella*. The best example of this insect had settled on my boot, while I was busy with a sandwich and enjoying the fine view of the Medway, to be had from this favourite hunting-ground of our late Editor, whose death we all so sincerely deplore. *Argyresthia semitestacella* was very common among beech on the top of the down. Larvæ of *Coleophora nutanella* (*inflatae*) crept up from flowers of *Silene inflata*, Bladder Campion, gathered on this occasion. I was again at Halling on August 25th, and found larvæ of *Acalla* (*Peronea*) *logiana* on *Viburnum lantana*. The moths appeared in mid October. On September 15th I had a very poor day at the same locality, but I did find, quite exposed at the road side, among Bladder Campion, the larvæ of *Dianthoecia nana* (*conspersa*). *Salebria* (*Rhodophaea*) *formosa* is, in my experience, so uncommon in this part (South-end) of Essex, that the occurrence of one larva on September 22nd, caused me to work hard for more, but I could not find a second example. *Tortrix pronubana*, which was discovered here last year by my poor friend the late Mr. Conquest, is quite the moth of the moment. I have bred it pretty freely, the first emergence taking place on August

31st last, and at the present date (October 20th) it is still emerging. On a fence this morning, at 9.15, I found a freshly emerged specimen. On the 13th inst., I took one flying over *Euonymus* at 12.30 p.m. Evidently a strong colony of this insect has taken possession of Southend.—Id. [In *Proceed. S. Lond. Ent. and N. H. Soc.*, 1911-12, p. 61, Mr. R. Adkin stated of *T. pronubana* that "the second emergence, which usually takes place about the beginning of September, appeared to be practically over early in August (1911), but stragglers met with during the latter part of September appeared to indicate a third generation." Possibly the specimens captured in October, in the open, were examples of a third brood, but it must be remembered that this species is a native of the Mediterranean littoral, and is practically continuous brooded under southern conditions.—H. J. T.]

Second brood of Smerinthus ocellata.—On September 3rd I bred a specimen of *S. ocellata* from a this year's larva.—L. W. Newman (F.E.S.), Bexley.

Leucania albipuncta at Deal.—On August 27th I had the pleasure of taking two specimens of the above rarity at sugar on the Deal sandhills.—A. E. Tonge (F.E.S.), Aincroft, Grammar School Hill, Reigate.

Polia chi in the South.—On September 3rd, while going through the neighbourhood of Winslow, Bucks, I obtained two specimens of *P. chi* on brick walls. It is I believe most unusual to take this species so near London, though it occurs not infrequently in Devonshire.—Id.

Colias edusa at Reading.—On August 28th one of my sons captured a ♂ of the above species, and on August 29th saw a ♀. I only know of one other having been seen this autumn in this district. —W. E. Butler (F.E.S.), Hayling House, Oxford Road, Reading. *October 7th.*

Larva of Manduca (Acherontia) atropos at Chichester.—A full-fed larva of *Manduca* (*Acherontia*) *atropos* was brought to me on September 18th last. It was of exceptionally small size, but the colour indicated imminent change to the pupa, and it went to earth as soon as it was placed in the flower-pot. This is the only instance I know of the occurrence of the insect here this season in any stage. In some years the larvæ are by no means uncommon on potato leaves.—Joseph Anderson, Chichester.

Recollections of the Eastern Counties.—I have read with interest the notes by the Rev. C. Thornewill (p. 230) on his captures in Norfolk, as I have from time to time collected in the district he refers to—the interesting "breck" country, bordering the counties of Norfolk, Suffolk, and Cambridgeshire. Having been successful in finding most of the insects and plants peculiar to the district, a few supplementary remarks may be of interest. With regard to *Lithostege griseata*, to which your correspondent makes special reference, I well remember finding this species for the first time amongst a patch of *Sisymbrium sophia* growing, as noted by your correspondent, at the edge of a cornfield, when a nice series of freshly emerged specimens was taken. A visit during a subsequent year, in the month of August, was productive of the larvæ of this species in considerable abundance, feeding on the seed pods ot *Sisymbrium sophia*, to which it bears a close mimetic resemblance. It is not necessary to search for the larvæ by night, once the eye is accustomed to them they may be seen quite readily, and, when one is found, more are to be expected on the same plant or

clump. They are not difficult to rear if a good depth of their native sand, or something approximating to it, be provided, as they pupate deep down. A proportion of them lie over to a second or even a third year; this obviously helps the species to maintain itself in the event of larvæ being destroyed when the plants are cut down with the corn, as there may be at the same time pupæ below ground from a previous season's larvæ. Furthermore, I have noticed that the plants frequently grow beside the cart tracks and at the edges and corners of the fields, where they escape the ravages of the reaper. *Sisymbrium sophia* is certainly a local plant in the "breck" district and elsewhere, but *Lithostege griseata* is still more local; large patches of the plants occur without a sign of the moth. I believe the larva is strictly confined to the one food plant; when specimens are found amongst the clovers and trefoils they have doubtless been blown there by the breeze, which is so prevalent in the open "breck" country, and which, with their feeble flight, they would be unable to withstand. I agree with your correspondent's remarks as to the scarcity of *Lithostege griseata*, it seems to be one of the rarest of the insects peculiar to the "breck," but I think *Dianthoecia irregularis* is probably even scarcer. However, larvæ of the latter may be found abundantly, when it is known where and how to look for them. This insect again is much more local than its foodplant —*Silene otites*. With reference to *Agrophila trabealis* (*sulphuralis*), there is certainly a partial second brood in August. I once found *Orobena* (*Pionea*) *extimalis* common in a clover field, and it was with considerable interest that I subsequently took a specimen in Hampshire—the only one I have seen elsewhere. No doubt the abundance of different species varies according to the season here, as elsewhere. One year I found large numbers of the pretty yellow-striped larvæ of *Anticlea sinuata* feeding on the flowers of *Galium verum* in a locality where a few years before hardly any could be found, and where a few seasons later it seemed to be absent. Geologically, botanically and entomologically this is one of the most interesting areas in the British Islands. I am not aware that the geologists have entirely accounted for the physical formation, but there seem to be indications of an ancient coast line; the fauna certainly has littoral affinities and may be an ancient survival. Insect life is less abundant than in our southern counties, but there are quite a number of forms peculiar to the region. Bird life is noticeable in the abundance of Stone Curlews, and in the occurrence of Ringed Plovers inland and away from water.—HERBERT ASHBY (F.E.S.), Broadway House, Brookdale Road, Southampton. *October 17th.*

CURRENT NOTES AND SHORT NOTICES.

We should like to call the attention of our readers to the Annual Exhibition of Varieties, etc., to be held by the South London Entomological Society, at their commodious rooms, Hibernia Chambers, London Bridge, which takes place on November 28th, at 7.30. Visitors are cordially welcomed and are invited to bring exhibits.

The rich collection of Orthoptera made in past years at Geok-Tapa, in the Transcaucasus, by that good all-round naturalist A. B. Shelkovnikoff, is being determined by Professor Y. P. Shtchelkanovtseff, of Warsaw University, who has already published two or

three very useful papers on the Orthoptera-Fauna of the Caucasus, which is exceedingly interesting, as northern, Alpine, meridional, and Asiatic forms meet in this highly diversified district.—M.B.

P. A. Zaitseff, former editor of the *Revue russe d'Entomologie*, has been appointed to the post of Entomologist of the Botanic Gardens at Tiflis.—M.B.

B. P. Uveroff, at the Entomological Bureau of Stavropol, in the Northern Caucasus, is a valued recruit to the gradually increasing array of Russian entomologists, and has already done good work on the Orthoptera of the Caucasus, Turkestan, and the Transcaspian district.—M.B.

The Orthoptera-Fauna of Russia is so varied that this group has attracted more students in Russia than in any other country. Excellent work is being done and has been done by A. P. Semenoff-Tian-Schansky, N. Adelung, N. Zubowsky, Y. P. Shtschelkanovtseff, N. Ikonnikoff, B. P. Uvaroff, Retowski, the late A. M. Shuguroff, J. Ingenitsky, Stsherbakov, and others.—M.B.

In the *Scottish Naturalist* for August, Mr. W. J. Lucas gives a report of a considerable number of species of Odonata, taken by Col. J. W. Yerbury in the North of Scotland from localities of which but little has been known hitherto. The account includes the reference to a presumably new species of *Sympetrum*, described by Mr. Lucas, *Ent.*, xlv. (1912), p. 171, as *S. nigrescens*, and distinguished as being intermediate between *S. striolatum* and *S. scoticum*.

We have heard with regret of the death of another of the older entomologists, Dr. Sequiera, well known for so many years as a constant attendant at the fortnightly meetings of the City of London Entomological Society. He was the life long-friend of the late J. A. Clarke whose collections contained so large a number of extreme varieties of our native species of Lepidoptera. For some years past Dr. Sequiera had been totally blind, but up to a few months before his death he kept up a most lively interest in everything that was said at the City of London meetings and also in the exhibits, which had to be explained to him. He was a man of unusually buoyant spirits and even the great affliction of his later years never altered his cheerful and hearty manner. He was within a few days of 84 years of age.

Mr. H. H. Brindley, M.A., of St. John's College, Cambridge, is pursuing an investigation into the *Proportions of the Sexes in Forficula auricularia*. From observations made in many localities upon thousands of specimens there seems to be a preponderance of the female sex in most places, although the percentage of males has been found to vary (1) in different localities, (2) in the same locality in different years, (3) before or after hybernation, etc. But the evidence as yet is considered to be insufficient to suggest any very definite statement of result.

In the August number of the *Revue Mensuelle* of the Société Entomologique Namuroise, Dr. Goetghebuer records the capture of examples of a new aberration of *Melanargia galathea*, in which the ground colour of the wings is of a very light yellowish, very much lighter than in the ab. *citrana*, Lamb. The undersides of the hindwings are quite without traces of the usual black design. Dr. Goetghebuer has named it ab. *flavescens*.

In the September part of the *Revue* M. Lambillion announces the

capture of a remarkable aberration of *Apatura ilia* by M. l'abbé Cabeau. The right side wings are perfectly normal in colour and marking, but the left wings are of a rich fawn ground as in the ab. *silvia*, Cab., and the spots on the upper wings are changed from white to a pale fawn colour, except that the three apical spots remain white. The specimen is a male. Unfortunately it is in a damaged condition, having been apparently attacked by a bird.

In a recent *Bulletin de la Société entomologique de France* some valuable notes are given by M. P. Chétien on the early stages of the three species of *Euchloë* (*Anthocharis*) from Morocco, *E. belemia*, *E. falloui*, and *E. charlonia*. The larvæ of all three species feed in the spring. *E. belemia* feeds on the flowers chiefly of *Moricandia suffruticosa*, *M. teretifolia* and *Brassica tourneforti*. *E. falloui* feeds on the flowers of the first named Crucifer only. While *E. charlonia* feeds on the leaves chiefly of another Crucifer, *Diplotaxis pendula*.

We would like to call the attention of our readers to the exchange column, and to ask all those, who make the use of it, to indicate in their covering letter, or to give us due notice, when they wish their lists to be withdrawn, or to be modified. As a rule Duplicates are not all disposed of at once, nor are all Desiderata obtained at once, hence it has been our custom to continue to publish the Exchange Lists for a longer period than the one month for which they are first inserted. It is disappointing to correspondents to find that they have applied for duplicates already disposed of.

SOCIETIES.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY.—*June 27th.*—Mr. Sothern Dekter, of Lee, was elected a member.—JUMPING CASES OF SAWFLY LARVÆ.—Mr. Gahan exhibited some sycamore leaves showing the mines of larvæ of the saw-fly *Phyllotoma aceris*, and the remarkable cases, in the form of little circular discs, constructed by the larvæ. These cases become detached and move on the ground by little hops somewhat like the Mexican jumping bean. COLEOPHORA AGRAMELLA.—Mr. A. Sich, specimens of the rare Micro-lepidopteron, *Coleophora agramella*, from Hailsham. PUPÆ OF B. HIRTARIA LYING OVER FOUR YEARS.—Mr. R. Adkin, a short series of *Biston hirtaria* bred from Aviemore larvæ which fed up in 1908. The imagines exhibited emerged in March and April of this year. EXOTIC BUTTERFLIES.—Mr. Edwards, a pair of the beautiful Lycænid, *Eumoeus debora* from Mexico and a fine specimen of the rare *Epiphele eriopsis* from Bogota. VARIETY OF A. GROSSULARIATA.—Mr. Cowham, a fine symmetrical variety of *Abraxas grossulariata* taken in his garden, the usual yellow markings were almost absent, and the black markings were of smaller area and very symmetrical. ABERRANT COCOON OF P. CECROPIA.—Mr. Dods, a cocoon of *Platysamia cecropia* from which the imago had emerged by the wrong end. DARK B. EUPHROSYNE.—Mr. Goff, somewhat heavily marked specimens of *Brenthis euphrosyne* from Kent and Surrey. REPORT.—Mr. Step read the Report of the Delegates to the Congress of the South-Eastern Union of Scientific Societies held at Folkestone in June.—*July 11th.*—GALLS ON POPLAR-TREES.—Mr. Dennis exhibited the pyriform-petiole gall of *Byrsocrypta pyriformis* and the

spiral-petiole gall of *P. spirothecae* from poplar trees. THE GENUS CALLIDRYAS AND THE GENUS GONEPTERYX.—Miss Fountaine, examples of the W. Indian and S. African species of the genus *Callidryas* and of the large species of the genus *Gonepteryx* from America; the specimens were mostly bred by herself. LIVING LARVÆ OF PYRAMEIS CARDUI AND THE RESULTS OF THE CROSSING OF PIERIS NAPI AND VAR. BRYONIÆ.—Mr. Main, larvæ of *P. cardui* from Eastbourne, and long series of *P. napi* and var. *bryoniae*, the results of recent breeding experiments. SICILIAN LEPIDOPTERA.—Mr. Platt Barrett, a bred specimen of *Charaxes jasius* from a Sicilian larva and made remarks on the spring and early summer of the present year in Sicily. THE SAW-FLY PHYLLOTOMA ACERIS.—Mr. Step, photographs of the cases of *P. aceris* on the leaves of maple and sycamore from Ashtead and Oxshott. Several members had met with the species in their own districts. ABERRANT COCOON OF PLATYSAMIA CECROPIA.—Mr. Adkin, the cut-open cocoon of the above species, which had been previously exhibited, and pointed out that the inner envelope of the cocoon was reversed, hence the imago had to emerge from the wrong end of the outer envelope. LOCAL VARIATION IN COREMIA FERRUGATA.—Mr. Adkin read notes on several bred series of *C. ferrugata*. CURIOUS VARIATION OF PAPILIO PHORCAS.—Mr. Moore, *P. phorcas* from Africa, in which the veins in the green areas of the wings were widely margined with white. PUPAL HABIT OF LIBYTHEA CELTIS.—Mr. Sich, pupa cases of *L. celtis* suspended in a horizontal position beneath a leaf without a girdle for support. WHITE EGGS OF CERURA VINULA.—Mr. Sich, the egg shells of *C. vinula* of a creamy-white colour found in Sussex. EASTERN SATYRIDÆ.—Mr. Edwards, specimens of *Neorina hilda* and *N. crishna* from the Indian area.—*July 25th.*—OVA OF CHRYSOPA.—Mr. West (Ashtead) exhibited ova of a *Chrysopa* on the leaves of the garden Ox-eye Daisy. EXOTIC BUTTERFLIES.—Mr. Edwards, the butterflies *Eunica eurota* from Brazil, *Smyrna blomfeldii* from Mexico, and *S. karwinskii* from Brazil. LIVING LARVÆ OF C. EDUSA.—Mr. J. Platt Barrett, a full fed larva of *Saturnia pyri*, from Sicily, young larvæ of *Colias edusa* from ova of an English caught ♀, and a large number of butterflies from S. Africa. VARIETIES OF P. LECHEANA.—Mr. R. Adkin, *Ptycholoma lecheana* from Brentwood, one almost unicolorous buff colour and unusually pale, the other a rich deep brown with very distinct silvery markings. THE SEASON OF 1912.—Remarks were made on the abundance of *Celastrina argiolus*, and the occurrence of *Sesia stellatarum* and *Colias edusa* this season.—*August 8th.*—PUPATION POSITION OF P. MACHAON.—Capt. Cardew, larvæ of *Papilio machaon*, from Stalham Dyke, spun up for pupation. LARVÆ OF P. ALEXANOR.—Mr. Hugh Main, larvæ of *Papilio alexanor*, from the S. of France. C. EDUSA AT DIEPPE.—Mr. H. Moore, a short series of *Colias edusa* taken in the Forest of Arques, Dieppe, in August. OOTHECA OF P. ORIENTALIS.—Mr. Priske, a ♀ cockroach *Periplaneta orientalis* with the ootheca still attached to her. RESPONSIVENESS OF PUPÆ TO SURROUNDINGS.—Mr. F. D. Cooke, the pupæ of *Pyrameis cardui* to show the difference between those spun up on white muslin and those on darker material. VARIED SERIES OF BRITISH MOTHS.—Mr. Newman, long series of *Dianthoecia carpophaga*, specimens of *D. capsincola*, and *D. capsophila*, and Kentish *Dianthoecia* identical with I. of Man *D. capsophila*. ABERRANT AND RARE COLEOPTERA.—Mr. Blenkarn, *Haliplus wehncki* with aberrant œdœagus, a specimen of

Clytus arietis with the first yellow belt reduced to a minute spot, an unusually small example of *Philonthus puella*, and specimens of the very rare Coleopteron *Pentarthrum huttoni* from the cellars of Messrs. Moët and Chandon.—*August* 22*nd*.—Exotic Butterflies.—Mr. Edwards exhibited the exotic butterflies *Thaumantis diores* from Assam, *Discophora lepida* from Ceylon, *Tenaris selene* from the Malay, and *T. honrathii* from Madagascar, all belonging to the Asiatic section of the *Morphinae;* and specimens of *Opsiphanes boisduvalii* from Mexico, referring to their conspicuous tuft of scent hairs. Shetland Lepidoptera.—Mr. Newman, a very long series of *Pachnobia hyperborea* from Rannoch, showing much variation, a short, very uniform series from Shetland, where the species was fast disappearing, it is supposed owing to the attacks of ichneumons, a few *Crymodes exulis* from Shetland, including a very pale specimen, and a long series of his inbred yellow form of *Callimorpha dominula*, with the only intermediate he had obtained. Lapland Collecting.—Mr. Sheldon gave a very interesting account of his holiday near the N. Cape in search of butterflies and bird's eggs. A rare Coleophorid.—Mr. Sich, specimens of *Coleophora apicella* taken at Byfleet in June, where its food-plant, *Stellaria graminea*, grows abundantly. Ova of Chrysopa.—Mr. Adkin, the ova of a *Chrysopa*, which were on unusually short stalks. Collecting Notes.—Reports were made that larvæ were very scarce this season, especially in the New Forest. *Bryophila perla* was noted as very scarce. *Agriades coridon* was still common in Hertfordshire, and several var. *semi-syngrapha* had been taken, while the ♀ s varied from very deep black to khaki coloured ground. Captain Cardew noted the curious fact that *B. muralis* was common at Folkestone but completely absent from Dover, where apparently conditions were most favourable. —*September 12th*.—An Ephestia.—Mr. Tonge exhibited an *Ephestia* sp. bred from an Egyptian date. Galls.—Mr. Moore, galls found on the wild rose. Variety of R. phlæas.—Mr. Gibbs, a *Rumicia phlaeas* from Woburn, a combination of ab. *radiata* and ab. *coeruleopunctata*. Varieties of British Butterflies.—Capt. Cardew, an *Apatura iris* with much fulvous shading on the hindwings, a series of *Eupithecia subfulvata* bred from Northumberland, a living larva of *Acidalia immutata*. Varieties of Continental Butterflies.—Mr. Curwen, a large summer form of *Pieris napi* with rays evanescent, *Polyommatus icarus* ab. *arcuata*, *Agriades coridon*, with aberrant markings on the undersides, and an *Argynnis niobe* var. *eris* with an extremely deep green ground on the undersides of the hindwings. A. alexius and P. icarus ab. icarinus.—Dr. T. A. Chapman, specimens of *Agriades alexius* and of *Polyommatus icarus* ab. *icarinus* and gave a detailed account of the former species which Freyer put forward as far back as 1858. L. albipuncta.—Mr. Tonge reported *Leucania albipuncta* at sugar at Deal, and specimens of *Polia chi* at Winslow in Bucks. Report.—Mr. Sich read his Report as delegate to the International Congress of Entomology in early August.

OBITUARY.

A. M. Shuguroff.

A promising young Russian Orthopterist, A. M. Shuguroff, died at Kutais, in the Caucasus. He had been stationed at Odessa, and

Simferopol, and was recently appointed to an entomological post at Kutais, in the Western Caucasus, where unfortunately he met a tragic end during the past summer, before he had attained his thirtieth year. He had published several papers on the Orthoptera of the Russian Fauna, mostly in Russian: we know of the following "Orthopterological Notes," (*Rev. russe d'Ent.*, 1905, p. 33), "Note on the Species of Genus *Callimenus*, F. de W.," (*Rev. russe d'Ent.*, 1906, p. 176), translated into English in the *Entomologist*, 1907, p. 248, "A Revision of the Genus *Gampsocleis*," (*Zap. Novoross. Obsch. Estest.*, xxxi., 1907), "A sketch of the Fauna of the Government of Cherson," (*Hor. Ross. Ent. Soc.*, xxxviii., p. 109, 1907), and "Kurze Notizen zur geschichte der Krym'schen Fauna." (*Mitth. der Kaukas. Mus.*, 1908).—M.B.

William Rickman Jeffrey.

Again we regret to have to record the death of a veteran entomologist. William Rickman Jeffrey was one of those ardent field-workers whom the father of our modern entomology, the late H. T. Stainton, gathered around him in the mid-Victorian period. In the first list of entomologists ever collected, which was compiled by the last-named gentleman, and published in the *Entomologist's Annual* in 1857, we read the name W. R. Jeffrey, High Street, Reigate, we find his name among the contributors to the pages of the *Entomologist's Weekly Intelligencer*, and he was a constant contributor to the *Entomologist's Monthly Magazine*, to which he contributed field-notes as recently as 1909. Mr. Jeffrey was a native of Ashford in Kent, where he was born in 1836. Owing to delicate health he was taken from school at the early age of twelve, and for three years spent an outdoor life at Folkestone, where the famous Warren was his constant resort. It was during this period of his life that he not only gained health and strength, but he acquired that taste for the study of nature in the field, which he retained throughout his long life. At the age of fifteen he was apprenticed to the late Mr. Thomas Nichols, watchmaker of Reigate, a very rich entomological locality much worked in the early fifties by H. T. Stainton. A friendship sprang up between young Jeffrey and Stainton, which lasted unbroken until the death of the latter in 1892. Unlike most entomologists he early took up the study of the so-called Micro-lepidoptera, and much information was obtained by him for the various works brought out by his friend. After leaving Reigate he lived for some time at Scarborough, and there met those two enthusiastic and ardent workers in entomology, the late John Scott and the late Thomas Wilkinson, and to the latter's famous work on the *British Tortrices* he gave or substantiated much detailed information. In the late sixties he returned to his native town of Ashford, where he remained till his death. At Ashford his entomological work was largely done to assist the late William Buckler in his great work, *The Larvæ of the British Lepidoptera*, in which work his name frequently occurs. He could not be a worker at life-histories without an intimate knowledge of wild plants, and that he had this we are assured, since he was in close correspondence with Mr. Fred. J. Hanbury, the author of the *Kentish*

Flora, and further, we note that one of his sons is at present curator of the herbarium of the Royal Botanical Gardens, Edinburgh. Latterly he had turned some of his attention to the Cryptogams, and he was studying the Mosses and Fungi of the Ashford district. At his death he was in his seventy-sixth year.—H.J.T.

Albert James Fison.

English Lepidopterists who have hunted in the Rhone Valley during their expeditions in Switzerland will hear with keen regret of the death of Mr. Fison of Charpigny, who has proved himself for many years so good a guide and so kind a friend to all of those with whom he came in contact. His death took place at Bex, after a few days' illness, on October 6th, and he was buried in the Clarens cemetery on the following Tuesday. Albert James Fison was the younger son of the late Cornell Fison, of Thetford, Norfolk, and was born March 13th, 1840, and was consequently well advanced in his 73rd year. He first came out to Switzerland at the age of fifteen on account of his health, at a time when the railway went no further than Besançon, and resided at the house of the late Dr. Taylor of Charpigny. His life-long affection for Switzerland, and his interest in its plants and butterflies, and to some extent also in its geology, began so long ago as this. His collection of Swiss butterflies was most interesting and complete, and for many years past he carefully labelled every specimen with date and locality. Even those taken previous to this time have a certain degree of local distinctiveness, for all were taken in Switzerland, almost every specimen by himself, and those taken on the southern slopes of the Alps are distinguished from the others by black pins. This collection, which remains at Charpigny, is now the property of his nephew, Mr. G. H. Fison, of Southcote, Castle Hill, Guildford, who kindly supplied the details of his early life, and who states that he will gladly give an order to see the insects to any bonâ-fide entomologist who applies to him at the above address. The collection contains, among many other very interesting examples, the type specimen of *Brenthis pales*, ab. *cinctata*, Favre, the only known Western European specimen of *Pararge megaera*, ab. *transcaspica*, and a natural hybrid between *Colias palaeno* and *C. phicomone*.

This is not the place to enlarge on the religious side of Mr. Fison's life, but in this respect also he will be greatly missed at Clarens. The school of thought to which he belonged has often been accused of narrowness, but in him, at any rate, there was no touch of such a quality, and his friendship with the late Chanoine Favre and with the writer of this notice, with neither of whom can he have had much in common, was never marred by the slightest jar, such as with one who had less of tact or of charity might so easily have arisen. Among the Entomologists who resided in, or visited, the Rhone Valley he had many friends, to whom his memory will bring back many happy days and numberless acts of kindness.—G. W.

Corrections. — p. 244, l. 20, add "s" to "discoloration"; l. 22, delete "cause" and insert "insult" (G.W.N.). p. 246, l. 9, delete "costa" (twice) and insert "inner margin" (twice).



Photo. F. Noad Clark.

Ova of Coleophora viminetella.

Fig. 1.—Micropyle × 250. Fig. 2.—Ova in situ × 20.

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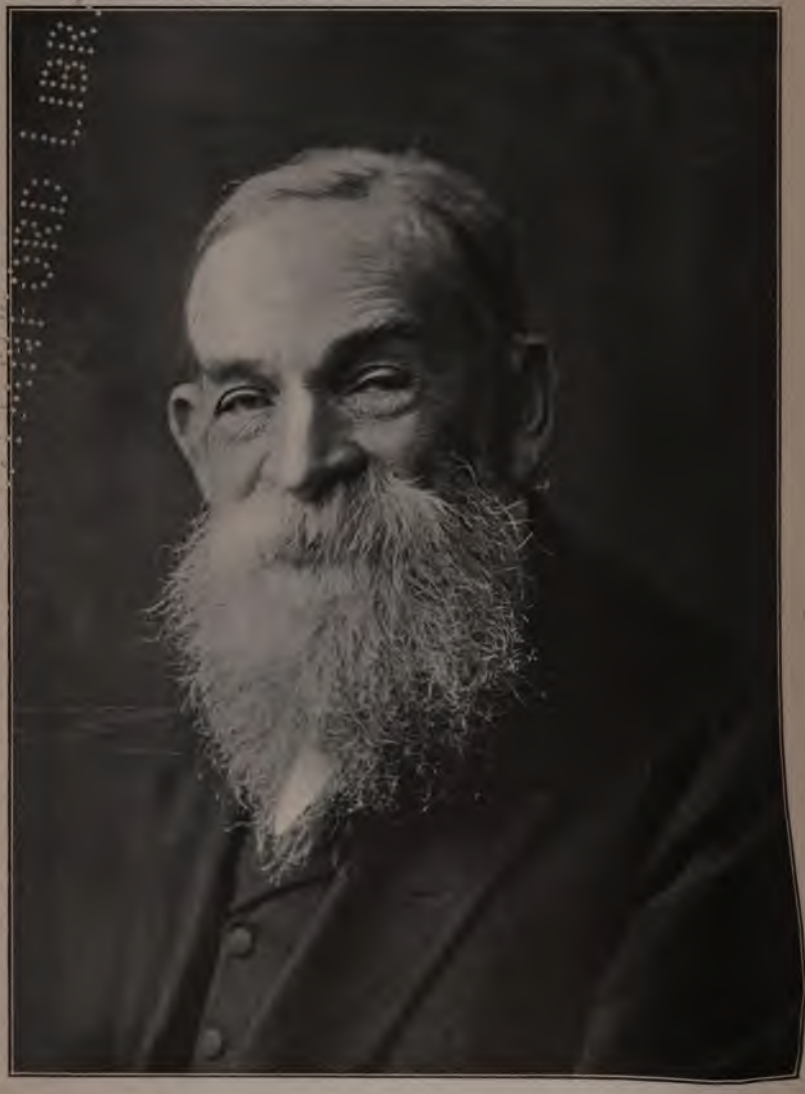


Fig. 2. Egg of Libythea celtis. Fig. 3. *Photo. F. Noad Clark.*



Fig. 4. Egg of Libythea celtis. Fig. 5. *Photo. F. Noad Clark.*





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Photo. by Vandyk,
37, Buckingham Palace Road.

William Forsell Kirby.

The Entomologist's Record, etc., 1912.

Notes on the various species of the genus Coleophora. (*With plate.*)

By H. J. TURNER, F.E.S.

COLEOPHORA OCHREA.

Through the kindness of Mr. E. Bankes, of Corfe Castle, I first came to know this local species in the larval stage. On May 12th, 1904, I received a few cases containing living larvæ, taken by him in the Isle of Purbeck. In his covering letter he stated that he had known of this colony for some years, but that he had been unable to get more larvæ than he was forwarding in spite of a long search. He stated that *Helianthemum vulgare*, upon which the larvæ feed is, in this place, in a very exposed situation. The cases sent were at this date small, and appeared very similar to those of *C. genistae*, although not so variegated in colour. The winter case persists and forms the anal portion of the enlarged case, and of course is less in calibre. The spring addition to the case is made from the cuticle of a leaflet, and is not attached quite symmetrically to the first case, hence the tube appears outwardly to be not quite a straight one, but still the two portions are more in line apparently than in the case of *C. genistae*. The colour of the case is somewhat dark, consisting of shades of green and straw colour, becoming with age more uniform. In order to satisfy the larvæ of this species one should have growing plants to go to, as they are particularly prone to wander, and if the foodplant be not absolutely fresh will come out of their cases, refuse food and die. From May 14th to May 17th two of the above larvæ were quiescent in a fixed position, apparently for change of skin, as on the latter date they began to feed again.

On June 10th, Mr. Bankes again visited the Purbeck locality for this species and found the larvæ more plentiful, although by no means as common as in previous years. Some two dozen larvæ reached me on June 18th, most of them being nearly full grown. The following is a description of one of these in its last skin.

"Head paler than rest of body. Thoracic segments paler than abdominal segments, but not so pale as the head. The black spiracular plates on the three thoracic segments of moderate size. The dorsal plate on the first segment divided into six irregularly shaped portions by somewhat wide sutures between them. Two of these lie on each side of the middle line (suture), and one outside on each side nearly in line with the two anterior portions. Segment 2 has two largish black plates. Segment 3 has two smaller ones. The dorsal suture in both segments is wide. The width of this dorsal suture is the smallest in segment 1 and the widest in segment 3. The anal plate is only very slightly darkened. All these plates are not strongly defined at their edges, there is a tendency for them all to pale outwardly and to shade into the general colour of the body. The general body colour is a rich dark brown with lighter shades."

It was a difficulty for me to get food plant and the larvæ did badly, and although they enlarged their cases again, by June 30th most of them had come out of their cases, often dismembering them, and died.

I did not meet with this species in the larval stage again until June 23rd, 1907, when in company with Mr. J. Ovenden, of Strood, I spent a most pleasant day at Cuxton and visited the spot, where some years

before the late Mr. J. W. Tutt had taken the imagines in abundance. In a somewhat sheltered spot on the chalk slopes facing east, where the *Helianthemum* was very luxuriant and well in flower, I found the larvæ in abundance and practically full fed. In a very short time I had annexed several dozens, but they were extremely local, being met with in an area of only a few square yards, and not one was to be found on the food plant elsewhere. The cases were now very large and very easy to see, as they hung from leaves, stems, flowers, flower-buds and seed-vessels. The larvæ seemed specially fond of the flower-buds.

The results from the larvæ taken were quite satisfactory, most of the larvæ pupated at once, and a very nice series was bred.

COLEOPHORA VIMINETELLA.

On the leaves and buds of *Salix caprea*, in Pollards Wood, Chalfont Road, Buckinghamshire, I found about a dozen of the woolly cases of this species on May 23rd, 1904. Among them was one very small, very dark case, presumably the winter case of a larva which was late in its spring awakening, or feeble from the attacks of a parasite. The rest were of all sizes, and one was partly green with a lichen-covered appearance. By June 20th several had fed up, and on June 30th the first imago emerged. Thus the pupal stage in this species appears to be about ten days.

On May 27th, 1906, I again met with this species in some numbers on some small willows (osiers?), around the smaller of the two ponds at Wisley, in Surrey. The following is a short description of the larva and its armatures :—

"There were three pair of abdominal claspers. The plates were quite black and shining. The anal plate was a small one, as also were the spiracular ones, in fact those on segments 2 and 3 were mere dots, that on the 3rd being smallest of all. The dorsal plate on the 1st segment was divided by a very fine suture, scarcely perceptible at the anterior edge, but wide posteriorly. The plate on the 2nd segment was divided by a broad suture, so that two nearly equilateral triangles were formed, with their bases towards each other. They were of fairly moderate area and well defined."

Of the imagines bred from this set of larvæ I was successful in getting ova. The eggs were very like those of *Coleophora laricella* and quite comparable to the general type of egg usual among the *Noctuidæ*. They were upright and deposited singly, but not far apart, both on the upper and under surfaces of the leaves of *Salix caprea*, among the woolly hairs. The following is a short description of the ovum taken at the time.

"The surface of the ovum is strongly ribbed with deep furrows between. There are from 15 to 18 of these ribs. The base of the egg is flattened and the ribs are not continued on it. These ribs are not very regularly placed, and half of them (alternate ones) disappear at uneven distances from the others near the micropylar area. The remaining ribs become less pronounced near the micropyle, but end abruptly, forming an irregular, slight micropylar depression on the vertex of the ovum. The colour of the egg is white with a tinge of pale yellow, but in a few days it turns to a darker yellow."

The photographs on Plate xii, very kindly taken by Mr. F. Noad Clarke, show the eggs *in sitû*, with one placed on edge to show the

flattened base, enlarged × 20, and the micropyle enlarged × 250. The irregular stopping of the ribs of the ovum and the somewhat ill-defined micropyle, are very apparent in the latter.

The Oothecae of Blattidae.

By the late R. SHELFORD, M.A., F.E.S.
Edited by MALCOLM BURR, D.Sc., F.L.S., F.E.S.

The egg-capsule or ootheca of the common pest of our kitchens *Blatta orientalis*, is a familiar enough object, which requires no detailed description here. Enough to say that it is composed of hard, brown chitin, and in cross-section is rather pear-shaped, the thin end of the section corresponding to the upper edge of the capsule. The upper edge is marked by a notched crest and the crest itself shows the line of dehiscence of the ootheca, this line extending about half-way down the two ends of the capsule. The notches in the sutural crest are said to indicate the number of embryos contained in the ootheca, but this is not really true. The embryos lie head uppermost in a double row, and their position and number is shown by grooves and bulgings of the sides of the capsule, beneath the sutural crest. This is clearly shown in the ootheca of *Periplaneta americana*, which is closely similar to that of *Blatta orientalis*; in this specimen the notches number thirteen, which would indicate twenty-six embryos, whereas really the number of embryos is sixteen, there being eight on each side of the ootheca, as shown by the slight excrescences below the sutural crest. The lips of the suture are not soldered together in any way, but remain closely appressed by virtue of the elasticity of the chitinous walls, whilst the sculpturing and puckering of the crest doubtless play a sort of interlocking action.

It has been stated that the young larvæ escape from the capsule by exuding a fluid which dissolves the material soldering together the lips of the suture. This is very doubtful; the young larvæ are provided with a pair of frontal vesicles which, by means of an alteration of blood pressure, can be enormously dilated, thus rupturing any covering, membrane, or egg-case. This method of escape from egg or egg-case is practically universal in the insect kingdom, though the position of the vesicle or vesicles varies; in the cockroach the so-called ocelli mark the position of these vesicles in the young larvæ.

Very similar to the Blattine type is the little ootheca, which belongs to an unknown Ceylon species, probably of the subfamily *Pseudomopinae;* it is attached to the upper surface of a leaf and the actual specimen, which is white mottled with brown, looks singularly like a drop of bird's excrement. Quite different is the really elegant egg-capsule of *Megaloblatta rufipes*, one of the *Nyctiborinae*, a subfamily confined entirely to the New World. The sutural crest is toothed and the sides of the capsule are beautifully striated; the number of contained eggs appears to be forty, judging by the grooving of the sides. The capsule is much flattened from side to side and is carried with the suture directed to one side, thus differing markedly from the Blattine position. The very similar ootheca of *Paratropes bilunata* which I found in the British Museum collection confirmed an opinion previously formed, *viz.*, that this genus should be removed from the *Epilamprinae* and placed in the *Nyctiborinae*.

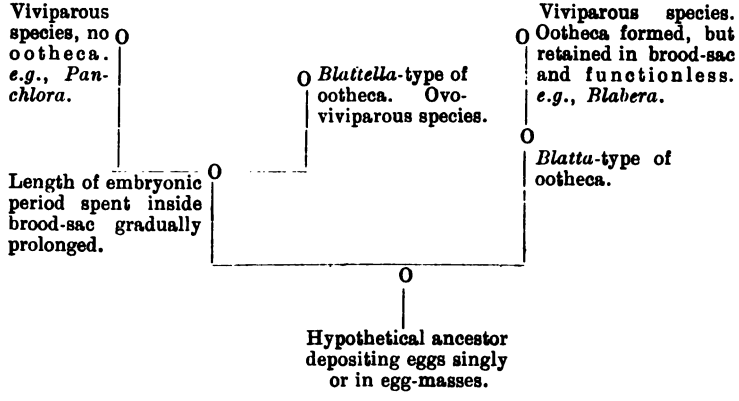
The egg-case of *Polyphaga aegyptiaca* (sub-family *Corydiinae*) has been figured by Brunner von Wattenwyl in his *Prodromus Europaischen Orthopteren* (pl. i., fig. 12 C.); it is chiefly remarkable for being furnished with a peculiar flange or spur at the posterior end of the sutural crest, which is deeply notched; it is not so rotund as the typical Blattine ootheca, but is rather intermediate in shape between such an one and that of *Megaloblatta*. There is no information as to the way in which the ootheca is carried, *i.e.*, with the suture uppermost or directed to one side.

The corresponding Neotropical genus *Homocogamia* has a very peculiar ootheca, if one may take that of *H. azteca* as an example. In shape it is not unlike that of *Paratropes bilunata*, but along the lower border on each side runs a thin flange, leaving between them a deep groove. The capsule is carried in the same way as in the *Nyctiborinae*.

On account of the egg-laying habits of the *Blattidae* and *Mantidae*, Handlirsch, the learned Viennese entomologist, has brigaded together these two families of Orthoptera, christening them the *Blattaeformia Oothecaria* and regarding them as the most primitive of all the families. From an anatomical point of view this opinion may be correct, but it is a mistake to suppose that all *Blattidae* form an ootheca. The case is far otherwise, and I can state with confidence that about one-third of the genera form no ootheca at all, or only a most imperfect one, the young larvæ emerging alive from the brood-sac of the mother. The viviparous habit amongst cockroaches was first discovered by Riley in *Panchlora viridis*, and numerous other examples have come to light since then. In most of these viviparous species the embryos are carried in the brood-sac of the mother enveloped in a thin membrane, which ruptures to let the embryos escape. But yet another method has been observed by Holmgren of species belonging to three subfamilies, *viz.*, *Oxyhaloa saussurei* (*Oxyhaloinae*), *Eustegasta micans* (*Epilamprinae*), and *Blabera* sp. (*Blaberinae*). In the last species a chitinous, sculptured capsule is formed and is retained in the brood-sac until the young are ready to emerge, when apparently it is deposited. In *Eustegasta* on the other hand the capsule splits open inside the brood-sac allowing the young to escape before the ootheca itself is actually got rid of. This type of viviparity is evidently secondary to the formation of a chitinous ootheca, or in other words, is derived from it, for it is not reasonable to suppose that an elaborate structure like the ootheca of *Megaloblatta rufipes* should have been developed if it was never to be exposed to view. It is far more likely that the *Eustegasta* and *Blabera* type of egg-laying is a secondary device to secure still greater immunity from the attacks of parasites, and it is no wild supposition that in course of time the chitinous ootheca, being in these species a work of supererogation, will disappear. The viviparity of *Panchlora* and *Panesthia* is another matter; it may be primitive, it may be derived from the *Eustegasta* type or from yet another type of ootheca, *viz.*, that shown by *Blattella germanica* and other *Pseudomopinae*. The ootheca of *B. germanica* is a thin leather sac, and carried with the suture, which is not marked with any crest, directed to one side, the number of contained eggs is rather large and therefore the length of the sac is considerable. The sutural line is marked by a series of puckers and the number of eggs is about fifty. This structure is carried in a brood-sac and protruding from

the apex of the abdomen until the embryos are just about ready to emerge, when it is deposited in a casual manner anywhere. It is obvious that this type of ootheca is not derived from the chitinous type but is merely an advanced development of the thin membrane surrounding the egg-masses of *Panesthia*, *Panchlora*, etc.

Now, which is the more primitive habit in the *Blattidae*, viviparity or the ootheca-forming habit? This is a problem which cannot be solved with certainty, but I believe that viviparity has in this family a two-fold origin. In *Blabera* and *Eustegasta* it is secondarily derived from the ootheca-forming habit, as shown by the presence of a more or less junctionless ootheca in these genera; in *Blattella* it may well be derived from an ancestral type, which deposited an egg-mass at the beginning of the embryonic period. The Blattine ootheca, elaborate as it is in structure, can hardly be regarded as truly primitive, and the fact that it attains its highest development in the *Nyctiborinae* and *Blattinae*, two highly evolved subfamilies, is further confirmation of the opinion that this structure came into being at a period comparatively late in the cockroach genealogical history. The following diagram may make matters a little more clear.



Whether there is a grain of truth in this diagram or not, one thing is clear and that is, that the various adaptations of habit and oothecal structure are designed with the object of securing protection from the attacks of external parasites. The appearance of these enemies would soon render the position of unprotected eggs untenable and two methods of protection could be adopted, either the eggs must be retained inside the mother as long as possible, or they must be concealed in a horny chitinous covering; both methods have met with success, but of the two the former seems to be the more successful, seeing that the *Blabera* type of viviparity is secondarily derived from the habit of forming a true and functional ootheca, and presumably is so derived because of its greater value to the species.

It only remains to give now a list of the sub-families and genera in which the egg-laying habit is known. The *Blattidae* are divided into sub-families, and the egg-laying habits are known in a certain proportion of genera in each sub-family, except the *Perisphaeriinae* concerning which we are almost quite ignorant. The following are the sub-families and genera about which we have some information:—

Sub-family Ectobiinæ.—Ootheca chitinous, of Blattine type. Known in the following genera :—*Ectobius*, *Theganopteryx*, *Hololampra*.

Sub-family Pseudomopinæ.—Ootheca either of Blattine type, or leathery and carried with the suture directed to one side. Known in the following genera :—

1. Blattine type, *Ellipsidion*, *Mareta*.
2. Leathery form, *Hemithyrsocera*, *Blatella*, *Ischnoptera*, *Loboptera*.

Sub-family Nyctiborinæ.—Chitinous ootheca of peculiar type. Known in the following genera :—*Megaloblatta*, *Paratropes*.

Sub-family Epilamprinæ.—Viviparous, ootheca represented by a membrane, which may, or may not, be retained in the brood-sac. Known in the following genera :—*Phlebonotus*, *Molytria*, *Pseudophoraspis*, *Epilampra*, *Eustegasta*.

Sub-family Blattinæ.—Chitinous ootheca carried with suture uppermost. Known in the following genera :—*Polyzosteria*, *Blatta*, *Periplaneta*, *Pseudoderopeltis*, *Deropeltis*.

Sub-family Panchlorinæ.—As in Epilamprinæ. Known in following genera :—*Gyna*, *Rhyparobia*, *Leucophaea*, *Panchlora*, *Nauphoeta*.

Sub-family Blaberinæ.—Chitinous ootheca formed, but never extruded, practically functionless. Known in following genus :—*Blabera*.

Sub-family Corydiinæ.—Chitinous ootheca of modified Blattine type. Known in following genera :—*Polyphaga*, *Homoeogamia*.

Sub-family Oxyhaloinæ.—Viviparous or with chitinous ootheca. Known in following genera :—

(i.) Viviparous. *Oxyhaloa*, *Diploptera*.
(ii.) Chitinous ootheca. *Chorisoneura*, *Ectoneura*.

Sub-family Perisphaeriinæ.—The only evidence that we have about the egg-laying habit of this sub-family, and that but indirect, is that supplied by Mr. Distant in his "*Insecta Transvaaliensia*" concerning *Cyrtotria* (*Stenopilema*). A female of the species was found living in a burrow in the ground surrounded by its young; this is slight evidence in favour of a viviparous habit, for the necessity of forming a horny capsule is obviated by the cryptic habit, and no trace of such a capsule empty seems to have been found, and it is highly unlikely that a cockroach should lay eggs, like the earwig and mole-cricket, entirely unprotected by an ootheca of some sort.

Sub-fam. Panesthiinæ.—Viviparous. Ootheca a mere membrane. Known in the following genera :—*Panesthia*, *Salganea*.

It is quite evident that the egg-laying habits can be of considerable use in any scheme of classification of the *Blattidae*. The discovery of the ootheca of *Paratropes* was definitive evidence in favour of the inclusion of this genus in the *Nyctiborinae*, and the oscillations of *Hemithyrsocera* between the *Ectobiinae* and *Pseudomopinae* are brought to an end by the discovery that its ootheca is similar to that of *Blattella*. It will be noted that so far as our present knowledge goes, the egg-laying habit is diverse in only two sub-families, the *Pseudomopinae*, in which a leathery capsule and a chitinous capsule is formed, and the *Oxyhaloinae*, which exhibit viviparity and the chitinous ootheca; certainly the latter sub-family is no natural one, and could well be split into two, but whether the *Pseudomopinae* lend themselves to the same treatment cannot be decided.

Occasionally a female cockroach may be captured with an ootheca protruding from the apex of the abdomen and it will be noticed that the position of the capsule between the lips of the valvular subgenital lamina (last ventral plate) is such that the suture of the capsule is uppermost. The female carries the capsule thus protruding from the end of her body for seven or eight days, and then deposits it in some secure nook or cranny, either wedging it into a crack or else with a drop of some glutinous material making it adhere slightly to some foreign substance.

The most important cockroach-parasites are the species of the Hymenopterous genus *Evania*, curious looking insects with the abdomen small, triangular, much flattened from side to side, and slung to the thorax by a slender pedicel. The *modus operandi* of the parasite has, so far as I know, not been observed, but it is tempting to suppose that the female can slip her cleaver-like abdomen between the lips of the oothecal suture, and so right into the ootheca itself; so hard and horny is the capsule that the suture appears to be the only part susceptible to attack.

The egg-cases of *Periplaneta americana*, the well-known "ship's cockroach," and *P. australasiae* are very similar to that of *B. orientalis*. Both are abundant household pests in the tropics. It is concerning certainly one of these two species that the following observations were made in West Africa by Col. Wynn Sampson:—"Ootheca is similar to the English one, but apparently the female is not satisfied with the protection it affords to the egg, and she therefore not only covers it over, but also uses the material of the substance to which the ootheca is attached for this purpose. One specimen, for instance, was half embedded in the top of a cork, and chips of cork completely covered the capsule; another was stuck on the edges of the leaves of a book and was covered with fragments of paper; another on the leather binding of a book was covered with fragments of leather; whilst a fourth example was fastened to some mortar between two bricks, and was actually covered with mortar." It is not without interest to note that De Geer, quoting Madame Merian on the habits of *Periplaneta americana*, says that they cover their egg-cases with a "toile fine"; De Geer doubts the accuracy of his informant's observations, but it is quite possible that Madame Merian was attempting to describe a habit which has not been observed again for over a century.

The egg-case of *Deropeltis autraniana* protrudes from the abdomen of the female. The distortion, due to drying, shows that the ootheca is more of a leathery consistency, and in this feature, together with its greater length, it differs from those already described. It may be noted here that the formation of the ootheca is gradual, proceeding from backwards before, and the more advanced it is in development the further it extrudes.

Notes on a July trip to Switzerland.

By B. S. CURWEN.

On July 5th I started for a twenty-five days' tour in Switzerland, and as the weather was very fair, compared with the subsequent weird meteorological happenings in August, and as butterflies were found to be comparatively plentiful, a short account of my captures may prove of interest. With me were a friend and my brother, neither of whom,

however, were actively interested in entomology. We travelled straight through to Interlaken arriving there in rain, which only ceased two days later, on our departure for Mürren on July 8th. On this day walking up the Lauterbrunnen Valley from Zweilutschinen, the sun was barely visible and everything was dripping. *Epinephele jurtina* and *Aphantopus hyperantus* were, however, on the wing, and soon *Pararge maera* in plenty was set moving. This last species was in perfect condition as was *Melitaea dictynna*, which was also only just emerging. Other things taken during the walk were *Pieris napi* and var. *bryoniae*, *Aporia crataegi*, *Colias hyale*, *Euchloë cardamines*, *Augiades sylvanus*, and *Cupido minimus*.

On July 9th, we walked up into the lovely Blümenthal from Mürren; the flowers were beautiful, but there was still some snow in isolated patches. The day was very fine and hot, and insects were in considerable numbers. *Parnassius apollo*, *P. napi* var. *bryoniae*, *P. brassicae*, *E. cardamines*, *Colias phicomone*, *C. hyale* and *Aglais urticae* with suffused hindwings and no blue marginal spots, were taken, as also were *Melitaea dictynna*, *Brenthis euphrosyne*, *B. pales*, *Coenonympha arcania*, *C. satyrion*, *Chrysophanus hippothoë* var. *eurybia*, *Loweia dorilis* var. *subalpina*, *Lycaena arion*, *C. minimus*, *Cyaniris semiargus*, *Aricia eumedon*, *Vacciniina optilete* and *Polyommatus icarus*.

The next day was spent in the Sefinen-thal, which was swarming with insects. All the butterflies met with on the previous day were taken, and in addition *Papilio machaon*, *Leptosia sinapis*, *Agriades coridon*, *Polyommatus hylas* and *Aricia medon* (*astrarche*).

On July 11th we turned our attention towards the Grütsch Alp; here *Erebia aethiops* was plentiful and of such a confiding nature that one specimen which perched on my finger allowed itself not only to be photographed but to be carried for quite a considerable distance before flying away. Other captures on this day were *P. machaon*, *P. apollo*, *Pontia daplidice*, *C. phicomone*, *Melitaea athalia*, *M. dictynna*, *Brenthis euphrosyne*, *B. amathusia*, *Argynnis aglaia*, *P. maera*, *A. coridon* (just emerging), *P. icarus*, *P. hylas*, *C. semiargus*, *A. medon* (*astrarche*), *Adopaea lineola*, *A. sylvanus*, *C. hippothoë* and *Erebia ligea*.

A move was made to Grindelwald on July 12th. The walk from the Wengern Alp to Grindelwald, although in bright sunshine, did not prove very productive. The species met with were evidently just emerging, with the exception of *P. machaon*, and *Melitaea cynthia*. *Pontia callidice*, *Colias palaeno* and *C. phicomone* were, however, taken, as also were *Brenthis pales* in abundance, *B. euphrosyne*, *E. cardamines*, *C. semiargus*, *Erebia epiphron*, and *E. pharte*.

On July 13th and 15th a little climbing on the two Grindelwald glaciers and the Alps round the Baregg Hut and Milchbach Chalet produced the following species:—*Pieris napi*, *Euchloë cardamines*, *Colias phicomonè*, *Brenthis pales*, *B. amathusia*, *Erebia pharte*, *E. aethiops*, *E. tyndarus*, *Loweia dorilis* var. *subalpina*, *Cupido minimus*, *Latiorina orbitulus*, *Agriades coridon*, *Albulina pheretes* (plentiful), *Polyommatus eros*, *Cyaniris semiargus*, *Cupido minimus*, *Coenonympha arcania*, *Melitaea dictynna*, *M. athalia*, etc.

July 14th was devoted to the valley between Grindelwald and Burglauenen, and among other things *C. arcania*, *Erebia manto*, *E. stygne*, *Chrysophanus hippothoë*, *P. hylas*, *Lycaena arion*, and *Aricia eumedon* were taken. *Brenthis amathusia* were swarming in a field *just above* Burglauenen station.

On July 16th the weather was all that could be desired, and an exceptionally good day's collecting was obtained at Hertenbühl on the slopes of the Faulhorn. Near Grindelwald the following species were taken:—*Aporia crataegi*, *Pyrameis atalanta*, *Issoria lathonia*, *Argynnis aglaia*, *Melanargia galathea*, and *Epinephele jurtina*, the last four being very plentiful. Higher up in the peaty meadows Fritillaries were swarming, *Melitaea athalia*, *Argynnis adippe*, *A. niobe* var. *eris*, *Brenthis amathusia*, and *B. dia*, with *Colias phicomone*, *Erebia epiphron*, *C. arcania*, and *Powellia sao*.

July 17th was devoted to climbing. The 18th and 19th were spent at Weissenburg in the Simmenthal, which although quite unknown to the writer was thought worth a visit owing to the large number of times it is mentioned in Rev. G. Wheeler's *Handbook to the Butterflies of Switzerland*. The weather was, however, hopeless, and beyond a few *Melanargia galatea*, *E. jurtina*, *A. niobe* var. *eris*, *Adopaea flava*, *Agriades coridon*, and a freshly emerged *Hirsutina damon*, all taken in a few minutes interval between two rain storms, with a pupa of *Polygonia c-album* from the gate post of the chalet at which I stayed, nothing was obtainable. The main road at the side of the Simme and the meadows above the Sanatoria should undoubtedly prove very productive in good weather.

At Meiringen, on July 21st, the weather was still unsettled; a walk in the environs, however, produced *P. rapae*, *Leptosia sinapis*, *M. athalia*, *B. amathusia*, *M. galathea*, *A. medon* (*astrarche*), *C. semiargus*, *Plebeius argyrognomon* and *Loweia dorilis*.

The next day was hopeless, but the 23rd dawned gloriously, and a fairly early start was made as we intended to walk from Meiringen up the Hasli-Thal to Handeck. The day proved highly remunerative entomologically. Practically all the species previously taken, with but few exceptions, were again in evidence at some stage of the walk, and many, which on previous days were found singly, now occurred in profusion. The additional species met with were *Dryas paphia*, *Hipparchia semele*, and *Heodes virgaureae*, all the last being ♂ s, fresh and very abundant. A pretty clay coloured aberration of *Pararge maera* was also taken.

The night was spent at the Handeck Hotel, a most comfortable and inexpensive place. The next day between Handeck and the Grimsel Hospice the following species were taken:—*C. phicomone*, *C. hyale*, *E. pharte*, *E. mnestra*, *E. gorge*, *E. tyndarus* and *Vacciniina optilete*. Except for a yellow Geometer, which was in profusion, there were few insects about. This was not to be wondered at as two days previously there had been over a foot of snow. We arrived at the Hospice about midday and then proceeded to the Hotel Belvedere Furka over Nageli's Graetli and the Rhone Glacier. Many *Aglais urticae* were seen even on the snow-fields at the summit, with occasionally an *Erebia lappona*.

The morning of July 25th was spent in the diligence between Gletsch and Brigue. A gentle drizzle nearly all the way prevented any entomological observations. In the afternoon at Brigue, the sun emerged, and in the fields near the town many insects were taken amongst which may be mentioned *Satyrus hermione*, *E. jurtina* var. *hispulla*, *Rumicia phlaeas* var. *eleus*, and *Polyommatus escheri*, which was very plentiful. After about an hour's collecting a thunderstorm put a stop

to further proceedings for that day. The next day was devoted to the Simplon Pass between Brigue and Bérisal. The weather was perfect and the collecting the finest in my limited experience. The following is a list of my captures in this rich and well known spot:—*Papilio podalirius*, *P. machaon*, *Parnassius apollo*, *Leptosia sinapis*, *Melitaea athalia*, *M. didyma*, in swarms both male and female, *M. phoebe*, also very plentiful and many var. *occitanica**, *B. dia*, *Issoria lathonia*, *Argynnis adippe*, *Melanargia galathea*, *Erebia euryale*, *E. ligea*, *E. aethiops*, *Satyrus hermione*, *S. cordula*, *Enodia dryas*, *Hipparchia semele*, *E. jurtina*, *Loweia dorilis*, *Lycaena arion*, *Hirsutina damon*, abundant, *A. coridon*, *Plebeius argus* and *P. argyrognomon*. Practically everything taken was in fresh condition with the exception of *L. arion*.

The next and last day, July 27th, was spent near Martigny in the direction of Vernayez, and proved rather disappointing, as indeed did a day spent in the same locality in August last year. The only things taken which were not seen on the previous day and in greater profusion were *Limenitis camilla*, *Brenthis daphne*, *Dryas paphia*, *Rumicia phlaeas*, *Nisoniades tages* and *Polyommatus icarus*. As was to be expected, the general condition of the butterflies was not so good as of those near Bérisal.

Altogether about 80 species were taken during the 25 days, and, apart from the mere collecting, the fascination of being able to observe the habits of many of our rarer British species would in itself make such a holiday very enjoyable.

An Old Essex Collection.

By the Rev. G. H. RAYNOR, M.A.

My friend, Mr. E. E. Bentall, of The Towers, Heybridge, acquired about a year ago a collection of British Lepidoptera undoubtedly formed in the neighbourhood of Chelmsford, but containing insects obtained from other sources. The collection was formed between the years 1842 and 1846 by an unknown collector, whose initials are A.G., and was preserved in the house of Mr. Andrew Marriage. It is contained in a cabinet of 26 drawers, and is in excellent condition. As it is only rarely that a complete collection of this sort survives to the present day, I think your readers will be interested to have an account of the species represented, with comments on the specimens and localities, where needed. In making this catalogue I adopt the names and the order in which the species are arranged in the original cabinet.

Papilio machaon.—There are 8 specimens, 3 of which are labelled Whittlesea, Seaman, 1846.

Gonepteryx rhamni.—5. Not labelled.

Colias edusa.—7. One labelled Baddow, 1845. Another Chelmsford, October 3rd, 1846.

Colias hyale.—11. The Essex specimens are from Southend and Chelmsford, one of the latter being taken in 1843. The other specimens are from Ipswich and Dover.

Pieris brassicae.—7.

Pieris rapae.—11. 2 being the variety *metra*, taken in May, 1845.

* Probably the somewhat variegated alpine form which is really the type form figured by Knoch (see *Ent. Rec.*, xx., p. 170). Var. *occitanica* is very rare in Switzerland and is only known from Varen and between Soustie and Pfyn.—G.W.

Pieris napi.—6.

Euchloë cardamines.—10. All rather under-sized, but one male having the apices beautifully clouded.

Leucophasia sinapis.—6. 1 of which was taken at Chelmsford by the owner of the collection, in 1844, 2 by Seaman at Ipswich, 1846, and 3 by Heppenstall at Sheffield, in 1846. It is particularly interesting to think that these specimens, of a species now so very local, should have occurred at two localities so far removed as Chelmsford and Sheffield, in which neighbourhoods it would now be quite in vain to seek for the insect.

Aporia crataegi.—5. The only Essex one was taken at Epping by Eddleston, in 1844, 2 were taken in Huntingdonshire by Seaman, in 1846, 1 was sent by Stainton from Cambridge, and the fifth is labelled Whitwell, 1844.

Nemeobius lucina.—6. Unfortunately without labels.

Melitaea athalia.—14. 1844 and 1846. Two of them were taken by the owner at Bromley Thicket (this is probably the Essex Bromley, near Manningtree), in 1844.

Melitaea artemis.—7. 1 specimen from Manchester, July, 1846, taken by Eddleston, another at Carlisle by Hodgkinson, 1846, the third being sent from Winchester by Stainton, in 1846.

Melitaea cinxia.—11. The only labelled specimen were from Coombe Wood, captured by Leplastrier, in 1846.

Argynnis selene.—7. None labelled.

Argynnis euphrosyne.—14. Without labels, but containing 2 heavily blotched.

Argynnis lathonia.—2. The upperside is in fair condition, but slightly damaged at the right apex. Underside in good order. One of these was taken by A. G. at Dover in August, 1846, the other is labelled Dover only.

Argynnis adippe.—10. 5 being from Danbury, A. G. 1846, and 5 from Hartley Wood (which is near Colchester), in 1844.

Argynnis aglaia.—5. 2 from Bath, 1843, 1 from Dover by Leplastrier, 1846, and 2 caught at Ipswich by Seaman.

Argynnis paphia.—9. All taken at Hartley Wood between 1844 and 1846.

Grapta c-album.—3. 1 from Catchpool, Colchester, and 2 from G. Whitwell of Peterborough.

Grapta polychloros.—7. 2 labelled specimens being Hartley Wood, 1846, A. G.

Grapta urticae.—10.

Grapta io.—4.

Grapta atalanta.—9.

Cynthia cardui.—10. 2 Chelmsford specimens being labelled October 3rd, 1846, 2 others being from Dover, 1846, A. G.

Apatura iris.—8. The owner's captures are 3 in number, made at Hartley Wood in 1843, 1844 and 1846. The other 5 were taken by Seaman between Ipswich and Colchester in 1846. The 3 males are apparently bred, the 4 upperside females seem to have been caught, and there is a lovely underside female of large dimensions.

Limenitis camilla (=*sibylla*).—7. 1 being labelled simply "from Seaman."

Hipparchia aegeria.—6.

Hipparchia megaera.—12.

Hipparchia semele.—11. Dover, 1846, A.G., being the only label.

Hipparchia galathea.—12. All labelled Hartley Wood, Essex, 1844 to 1846, A.G.

Hipparchia tithonus.—5.

Hipparchia janira.—9. One is very pallid.

Hipparchia hyperanthus.—7.

Hipparchia blandina.—5. 2 labelled Scotland, from Walford, 1846, 2 others Scotland, from Seaman, 1846, and the fifth Hodgkinson, 1846.

Hipparchia cassiope.—8. 4 from Perthshire, Weaver, 1846, 1 from Cumberland, Weaver, 1846, another from Cumberland Mountains, Eddleston, 1846, another from Carlisle, Hodgkinson, 1846, the eighth from Borrowdale, Hodgkinson, June, 1846.

Hipparchia davus.—11. All were taken by Eddleston, 1844-1846, except one caught in the North by Seaman in the latter year.

Hipparchia typhon.—2. Perthshire, Weaver, July, 1846. And 2. Perthshire, H. Doubleday, 1846.

Hipparchia pamphilus.—12.

Thecla betulae.—3. 1 Roxwell, 1842, A.G., 1 Galleywood Common, 1843, A. G., 1 Little Baddow, 1845, A.G.

Thecla quercûs.—14. All but 2 being from Chantrey Wood, 1844 to 1846, A.G.

Thecla pruni.—1. Monks' Wood, Hodgkinson, 1846. A female in rather poor condition.

Thecla w-album.—8. 4 being Witham, from Walford, 1846, 2 Ipswich, from Seaman, 1846, and 2 from Eddleston, 1844.

Thecla rubi.—10. 1 being Ipswich, Seaman, 1846, and all the others from Bromley Thicket, 1844 to 1846.

Lycaena phlaeas.—15. All quite typical and without labels.

Lycaena dispar.—2 glorious specimens, the male, of most radiant lustre, labelled "from Cambridgeshire or Hunts. Bought in London, 1843." Female, equally superb, "from Argent of London. Fens of Huntingdon. Bought 1846."

Polyommatus argiolus.—3 from Seaman of Ipswich, 1846. 1 Milton Park, near Peterborough, Whitwell.

Polyommatus alsus.—10. 8 from Dover, 1 taken by A.G., the others by Leplastrier. The ninth is "from Stainton, 1846," and the tenth "Hitchin, 1844."

Polyommatus acis.—2. The male in fine condition, labelled "Sheffield Heppenstall, 1846." The female, quite perfect, "Heppenstall, 1846."

Polyommatus corydon.—5 males, 5 females, and 5 undersides. Dover, August, 1846, A.G.

Polyommatus adonis.—8 males in most perfect condition and looking as though they were born yesterday, 2 equally brilliant females and 6 undersides. All Dover, August 1846, A.G.

Polyommatus alexis.—6 males, 5 females, 6 undersides. Not in any way remarkable.

Polyommatus argus (*aegon*).—6 males, 5 females, 8 undersides. 2 Dover, Leplastrier, 3 from Eddleston, 1844. The rest "from Penzance, Noye, 1846."

Polyommatus agestis.—6 uppersides, 4 undersides. One from Chelmsford, 1844, 1 from Southend, 1843, the rest Dover, 1846, A.G.

Polyommatus salmacis.—2 poor males, both from Whitwell, 1844, one of the labels being, "This seems to be *agestis*."

Polyommatus artaxerxes.—7. 3 From Scotland. Seaman, 1846. 4, Perthshire, Weaver, 1846.

Thymele tages.—1 Eddleston, 1844. 2 Heppenstall, 1843. 2 Ipswich, Seaman. 1 Carlisle, Hodgkinson, 1846.

Pamphila alveolus.—9. 1 Eddleston, Manchester, 2 Whitwell, Peterborough, 1845.

Pamphila linea.—6. 4 Males and 2 females, one of the latter being really the Essex Skipper, *H. lineola*. Unfortunately none have labels.

Pamphila sylvanus.—9.

Pamphila comma.—7. 4 "Dover, Leplastrier," 1846, 2 "Lewes, Thomson, 1846," and 1 "Seaman, Ipswich, 1845."

Although 66 years have elapsed since this collection was formed there may still be surviving some members of the ancient brigade who can identify for us the enterprising "A. G."

He certainly succeeded in getting a most interesting lot of Lepidoptera within a very limited period of time. The moths contained in his cabinet I propose to describe in a continuation of this article next month.

(*To be continued.*)

Notes of the Season 1912 at Constantinople.

By P. P. GRAVES, F.E.S.

I had very little time for collecting during the present year and the following notes are therefore somewhat meagre. Butterflies were distinctly less numerous than in 1911, and the year itself was unfavourable. An early spring which brought out *Callophrys rubi*, *Rumicia phlaeas*, *Pararge aegeria*, *Pontia daplidice* and the common Pierids in the last fortnight of March, was followed by a cold snap which lasted till the end of April. July was unsettled and the weather broke early in September and remained broken till the end of the autumn. In May and June I tried Kiathané, where I found nothing new, and the Gyök-su ground, where I found new localities for *Hesperia sidae* and *Polyommatus amanda* on June 6th, on which date I also took not a few fresh *Melitaea trivia* ♀ s and plenty of *Nordmannia ilicis*, these latter rather smaller than my specimens from the Belgrade forest. One *Nordmannia acaciae* ♀ was taken here. From July 18th to 22nd I stayed at Kuri-Yalova, a very pretty "station thermale," on the Asiatic side of the sea of Marmora, about 10 miles from the shore. The valley in which the baths and hot springs lie is well wooded; the geological formation is limestone and vegetation was rich and varied. Results were, however, disappointing. *Everes alcetas*, one ♂ was my only new species, though I took *Argynnis adippe*, a large form, which I had not found near Constantinople, and found what seems to be a form of *Melitaea phoebe* (unless it be the elusive *Melitaea arduinna*) much more common

than at Constantinople, as was *Dryas paphia*, *Dryas pandora*, *Satyrus hermione* (worn), *Polyommatus icarus*, *Aricia medon* (*astrarche*), *Aricia anteros* and *Augiades sylvanus*, were the commonest species. I only took two ♀ s of *Pararge roxelana*, both in good condition. One flew into our corner of the hotel at night (*cf.* Staudinger's remarks respecting *Satyrus fatua* at Amasia, *Lepidopteren Fauna Kleinasiens* part I.). *Thymelicus actaeon* was represented by one or two worn specimens, as was *Raywardia telicanus*. *Epinephele tithonus* was rare, as were *Leptosia sinapis* and, for a wonder, *Melitaea didyma*. *Nisoniades tages* of the second brood was just emerging and I took but one *Tarucus balcanicus*. This was, however, a perfect specimen. The Heterocera were apparently well represented. *Amphidasys betularia*, in fresh condition, surprised me in July, unless it is double brooded in the South. Here may I note having found the black and yellow larva of *Apopestes spectrum* on broom-rape on June 6th, at Gyök-su. In August I came across worn *Pararge roxelana* near Constantinople on several occasions, the latest being on August 24th. I missed *Pontia chloridice* and *Colias erate*, but found *Pontia daplidice* exceptionally common, as were *Chrysophanus thersamon* and *Aricia medon* (*astrarche*). The latter and *Plebeius argus* (*aegon*) are certainly at least partially triple-brooded here, as I took freshly emerged specimens of both on September 7th and 8th at the Belgrade Forest. On the same date I took third-brood examples of *Brenthis dia* which I found in 1911 worn in early May and very fresh at the end of June. I again found *Raywardia telicanus*, but in bad condition. I hear, however, from an Austrian fellow collector, that this species is not uncommon in gardens on the Bosphorus in October. These are meagre results, but one has had to think of other things besides collecting in Turkey in 1912.

A Summer Holiday in Belgium, Germany and Switzerland, 1912.

By E. B. ASHBY, F.E.S.

Leaving Charing Cross on the afternoon of July 5th, and after a pleasant crossing from Dover to Ostend, I reached Virton in the extreme south-east corner of Belgium early the next morning, having passed through Brussels, Namur and Marbehan Junction. The branch line from Marbehan to Virton is very pretty, and from Éthe to Virton has the appearance of being a very good collecting ground all the way, and although I stayed at Virton, I think one would in all probability do quite as well at Éthe. The only possible hotel at Virton is the "Hotel du Cheval Blanc," corresponding to a village inn at home, but not as clean as many English inns of its class. After breakfast I walked out to the Bois du Saint Mard, a distance of about four kilomètres, passing through the village of Saint Mard, which adjoins Virton. This wood reminds me very much of the well-known wood at Éclépens, above Lake Geneva, which Apaturids love so much. The weather on this day, July 6th, was tempestuous, and I was only able to get three *Apatura iris* and one *A. ilia* ab. *clytie*, although more were seen. *Aphantopus hyperantus* and *Melitaea athalia* were the only other species I took, although I saw *Melanargia galathea*, *Coenonympha pamphilus*, *Limenitis sibylla*, *Polygonia c-album*, *Pieris rapae*, *Pieris napi*, *Epinephele jurtina*, *Polyommatus icarus*, *Augiades sylvanus*, *Aglais urticae* and freshly emerged *Dryas paphia*. Nearly all the species

seemed in first rate condition. In the afternoon a terrific thunderstorm wetted me to the skin, although standing under the thickly leaved trees of the wood, and drove me back to the hotel at Virton to change.

Though a little rain fell early, July 7th was quite a nice day. I walked some distance along the road towards St. Leger to the well-known Vallée des Rabais, which is several kilometres in extent. In the woods to the left of the main road through the Vallée I took a number of male *Chrysophanus virgaureae*, as well as *Nordmannia ilicis*, *Brenthis dia*, *Argynnis paphia*, *A. aglaia*, *Melitaea athalia*, and *Cyaniris semiargus* (*acis*), besides being unable to capture *Polygonia c-album*, *Apatura iris*, *A. ilia* and *Limenitis sibylla*. Later in the day in the same valley I took both sexes of *C. hippothoë*, a fine just-emerged specimen of *Hesperia carthami*, and an interesting fritillary which I have not yet identified. I think that this valley would prove a very good collecting ground to anyone with plenty of patience, in fact the whole district between St. Leger and Ecouviez on the French frontier would probably repay any one who wanted to have an economical holiday, and who did not mind roughing it a bit. Between these two places no less than 78 species of the European Rhopalocera are to be taken, the best stations to work from being Ethe, Virton and Lamorteau, as well as Habay on the mainline near Marbehan, for the Forêt d'Aulier. The Vallée des Rabais, however, is rather an exhausting place to work in a single day on account of the very damp parts, which border the various natural streams flowing down it. To a botanist this valley would no doubt prove a "happy hunting-ground."

After spending a comfortable night in the train, early on the morning of July 8th, I reached Freiburg in Baden in time for breakfast. To any one who wishes to work the Black Forest district with Freiburg as a centre I can thoroughly recommend the Hotel Pension Bellevue in the Gunterstall Strasse. As soon as possible I caught a train from the Freiburg Wierhe Station for Hinterzarten which was reached after about an hour's run. When I entered the well-known ground to the north of the railway, I found *Colias palaeno* var. *europome*, both sexes, and *Coenonympha typhon* (*davus*) in abundance, as well as *Brenthis selene* (2nd brood I presume), and *Diacrisia sanio* (*russula*) in splendid condition. Unfortunately it came on to rain persistently about the middle of the day, and although it cleared later it spoilt the day. Owing to the previous heavy rains the "moss" was like a quagmire except along the regular path across it. This made the day's work very exhausting, as one walked up to one's boot-tops in water most of the time, and I was glad to return to Freiburg for dinner feeling very tired though very contented with the day's work.

On the next day, July 9th, I collected in the Mooswald, an extensive and fine wood, three miles out from Freiburg in a westerly direction, and which must be reached on foot, though one does not regret the tramp. In this wood I took several picked specimens of *L. sibylla*, very large *P. c-album*, *A. adippe*, *Araschnia levana* var. *prorsa*, and *Brenthis dia* with a few *B. daphne* (going over) and five *Apatura iris* and *A. ilia*. Along the road I took several *Sesia stellatarum*. The day was a very fine and hot one.

July 10th found me at Wasen Weiler station, on the line between Freiburg and Alt-Breisach, for a walk up and along the Kaiserstuhl, a

long hill about a mile and a half distant, and through Lilianhof, Lilianthal and Neun Linden. This was a long and tedious walk, and I was rather disappointed with the results. Probably it would pay better to work the Kaiserstuhl either in June or later on in August. The only insects of note which I took were five *Lycaena arion* in one field, two specimens of *Issoria lathonia*, and a few *S. stellatarum*.

On July 11th I failed to find anything worth noting in the morning on the Schlossberg, except a fine full fed larva of *Hippotion celerio*. Herr Goitze, of Neustadt, in the Schwarzwald, called on me at mid-day, and we forthwith took the train for Hinterzarten. Here our chief capture was a fine series of *Colias palaeno* var. *europome*. About 7 p.m. we had tea at a very comfortable restaurant in the village, and subsequently we sugared on the "moss" for Heterocera. For some reason or other we found little more than the commonest species. Herr Goitze returned direct to Neustadt the same evening, while I stayed the night at the restaurant, and was out on the "moss" in the morning by about 7.15. Here I spent the whole forenoon, taking fine series of *C. palaeno* var. *europome*, *Brenthis pales*, *B. selene*, *Vaciniina optilete* (large forms), *Erebia stygne*, a few females of *Chrysophanus hippothoë* (typical), and both males and females of *Diacrisia sanio* (*russula*). The "moss" was much dryer on this day, and therefore I did not get wet and cold as on the previous occasion, and could collect in many parts of it without trouble. On reaching Hinterzarten station, about mid-day, who should hail me but the Rev. G. Wheeler, on his way back to England to attend the Conference at Oxford. Although we only had a few moments in which to shake hands, it was long enough for me to note that he looked radiantly happy, which doubtless was the result of a successful "campaign" in Switzerland. I went on to Neustadt, where I spent some hours in examining the very fine collection of Lepidoptera from all parts of the world, which Herr Goitze has gathered together, and his kindness in showing it to me was much appreciated.

I again worked the ground at Hinterzarten on July 13th. *C. palaeno* var. *europome* was still swarming. I took some nice *Erebia ligea*, a few *C. hippothoë* (now going over), and many other useful things. In the afternoon of July 24th, a saunter in the near neighbourhood of Freiburg produced three *Polygonia c-album*, but I did not find some larvæ of which I had been told.

Again, on July 15th, I was collecting in the Mooswald. It was a very hot day, and it was here that I saw my first *Euvanessa antiopa*, flying with two Apaturids over a pungent dead hare. I took *Apatura ilia* var. *clytie* female and several *Araschnia levana* var. *prorsa*, and *Pyrameis atalanta* in fine condition. The Apaturids were now getting over in this place, although still moderately numerous. The same evening I left Freiburg and arrived about 10.15 p.m. at the Hotel Schweizerhof, at Neuhausen. This hotel is in a fine position, overlooking the far-famed Schauffhausen Falls of the Rhine. These are considered the finest falls in Europe, and are illuminated for the interest of visitors two or three evenings a week during the summer months. The effect of the various coloured electric lights is very beautiful.

July 16th was spent in the country near Neuhausen, lying north of the Rhine, and my captures included two *Apatura iris*, a series of

Loweia dorilis, quite fresh and in abundance, *Limenitis sibylla*, in very fair condition, and *Agriades coridon*, just emerging. I noted that the *A. iris* and *L. sibylla* taken on this day were almost perfect compared with the *passé* specimens I had met with during the past week in the Mooswald near Freiburg.

I went on to Schaffhausen on July 17th, some mile and a half from Neuhausen, and spent a short time at the Museum, where there is a small collection of local Lepidoptera in very fair condition. From here I was directed to the "scharrensumpf," a large reservoir, with the remains of a marsh around it, about two miles from the museum. There I took *Hirsutina damon*, but on some better ground behind and above a few farm houses to the right of the "scharrensumpf," away from Schaffhausen, I took *Papilio machaon*, *Colias hyale*, *H. damon*, *Agriades coridon*, and saw a fine specimen of *A. iris* and several more *P. machaon*.

July 18th was a dull, wet morning, but the sun got out at mid-day, and I crossed the Rhine and collected on the south bank of the river. Here I caught a Lycaenid which I did not recognise at first, but subsequently concluded it was a fine specimen of *Everes argiades*. A fine *A. iris* was seen but not captured, and *L. dorilis* was obtained in plenty. My return was by way of Schaffhausen, crossing the Rhine again by the old town bridge. The following day was a blank, for it rained the whole time.

The morning of July 20th was fine, and, among other things, I found on a tree-trunk a male and a female *Psilura monacha*. The female obligingly laid me a large batch of ova, which I am keeping for next spring. As rain came on again at mid-day I had to give up and return to the hotel. In the afternoon I left Neuhausen for Strassburg, which I reached about eight o'clock. It was interesting to see the remains of the many forts near Strassburg, and reminded one of the war of 1870. A walk later on through the town was very interesting, though unfortunately for me the cathedral was not open at this hour, and I had to content myself with admiring the fine exterior. After spending another night in the train I reached Brussels on the morning of July 21st. The day was spent in seeing the attractions of the city, in attending the grand services in the cathedral, and enjoying the festivities of the National Fêtes of Belgium. I did no more collecting, although I had intended, had I had more time, to visit the Forêt des Soignies and the Field of Waterloo. The same evening I left Brussels, reaching London early the next day, after a very pleasant and more varied holiday than usual.

In conclusion I must express my hearty thanks to Mr. B. Warren for maps and localities for the Freiburg district and the excellent notes on Hinterzarten which have appeared in the pages of this magazine by the Rev. G. Wheeler.

Collecting Orthoptera in the Caucasus and Transcaucasus.

(With two plates.)

MALCOLM BURR, D.Sc., F.E.S.

[Species marked * have not apparently been previously recorded from the Caucasus.]

The mighty range of the Caucasus, stretching its huge crest for 950 miles, from the Sea of Azov to the Caspian, rearing its snow-clad

peaks half as high again as Mt. Blanc, always appeals irresistibly to the imagination. The amazing diversity of peoples and languages, and of physical conditions, suggests possibilities of an infinite variety of faunistic problems.

Fired by a desire to get a glimpse of this wonderful land, if only to pass over the Russian steppes on the north, through the heights themselves, to catch sight of the lofty cone of Kazbek, of the mighty two-headed Elbruz, to visit the old Georgian capital of Tiflis, so often besieged and razed by Persian and Tartar, by Hun and by Turk, to explore the burning plains of Aderbadjian, and to view the luxuriant vegetation of Batum, attracted by thought of mystery, the *omne ignotum pro magnifico*, I did not hesitate to accept a cordial invitation to visit some Russian entomological friends in their own home, and in their company explore some of the marvels which Nature has so lavishly bestowed on this favoured region.

Circumstances delayed my departure, but the date of my return was of necessity fixed in advance, so my trip, though long in distance, was of the briefest in time. It was not until the last day of August that I reached Vladikavkaz, after six days in the train from Dover.

Vladikavkaz, as its name implies*, is the key to the Caucasus, and during the years of bitter warfare between the Russians and the mountaineers it was a most important military post. It is a spacious town, of some 80,000 inhabitants, laid out in wide rectangular streets, bordered mostly with one-storied houses, which gives it that unfinished look which is characteristic of Russian provincial towns. It is situated about 2,200ft. above the sea, on the plains of the Tver and Kuban provinces, the granary of Europe, at the foot of the great range of the Caucasus, at the opening of the Darial‡ gorge, which is the chief pass through to the valley of the Kura, and to Tiflis on the south. This gorge is, in fact, the gateway between Europe and Asia.

I had a few hours to spare in the afternoon and evening, so took a fly as far as Balta, at an elevation of 2,754 feet, the first *stantsia*, or military post, on the road to Tiflis, at the entrance to the gorge. High mountains rise abruptly out of the plain, and the Tver bustles down busily from the watershed, fed by streams from the glaciers of Kazbek,† the snowy peak of which could occasionally be seen, reddening with the evening glow. In the scrub beside the road, I found our familiar Central European *Olynthoscelis griseo-aptera* De Geer (=*Thamnotrizon cinereus* L.), was chirping merrily in the thickets; *Leptophyes punctatissima** Bosc., fell into my net as also the Alpine *Stauroderus apricarius*, L. and *Chorthippus parallelus*, Zett. *Stauroderus bicolor*, Charp., was abundant and for a minute I thought myself in East Kent. I also took *St. cognatus*, Fieb., an interesting South Russian species that I had not previously seen alive.

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* Most places in the Caucasus have Tartar names, that are generally used by the natives, as opposed to the official Russian names. Thus, Vladikavkaz is called *Kap kai*, "The head of the Pass," and Elbruz is *Ming Tau*, "Thousand heads" and Elizevtpol is *Gandja*.

‡ This name is derived from two Tartar words, *dar* or *dere*, a gorge and *yul*, a road. It has no real connection with the name of the Princess Daria of Tamara, the heroine of Lermontoff's "Demon." Derbend is the corresponding Persian orm.

† Kazbek is a personification. *Kaz* a proper name, and *bek* a Tartar title, given to landowners and persons of good positions.

It rapidly grew dark and my driver, a worthy Russian, became nervous and begged me to hurry out of the gorge, for he feared the Ingush. They are dark and dangerous men, he said, and master thieves. Probably he exaggerated greatly, but we had seen a dozen or so, in their black *cherkess* and sharp *kinjal*, and high fur-hat, riding their little hill-horses through the foam of the Terek, and I had been particularly warned by a Russian friend to carry a revolver, and leave my money at the hotel.

So we drew up at the Second Redant, a wayside inn, kept by a round-faced, black-eyed Georgian, who regaled me with most tasty trout from the Terek, and the inevitable *shishlik*, little pieces of meat roasted on a skewer, preceded by a glass of vodka, and washed down with a bottle of good Kakhetin wine. A cigarette over the coffee, a pipe, and home to Vladikavkaz.

The next morning broke misty and damp, and so robbed us of the unrivalled view of the mountain screen which towers over the city. Pressed for time, I decided to take the motor omnibus to Tiflis and reach there the same night, satisfying myself with a fleeting glimpse of the mountains. The more leisured traveller would do well to take three to four days and drive or ride, and even stop a day or two at some of the more beautiful spots. The car was an open omnibus, carrying eighteen passengers, none of which had been to Tiflis before. My neighbour was a young officer from Warsaw, spending a brief leave on a dash through the Caucasus to Baku, and home *via* Batum and Odessa. All were genial and all Russians.

Soon we were in the gorge, where the sun dispelled the mists, and we whirled at breakneck speed, always mounting, till at Lars we entered the romantic gorge of Darial itself, eternally famous from the poems of Lermontoff, every stone washed with the blood of Russian soldiers. The pass is narrow, and naked rocks rise sheer on each side, while the Terek bubbles and boils in the middle. The road, cut through the solid rock, is good, unfortunately, for we passed all too quickly. We rushed past a conical hillock in the gorge, with lofty cliffs on each side; on the top of the hill were perched the ruins of the castle of Tamara, a semi-fabulous Princess, who is reputed to have once reigned here with a rod of iron, in her grim and rocky fastness. The monotony of the gloomy life of this Amazon queen was relieved by frenzied outbursts of passionate and licentious orgies. This erotic Caucasian Semiramis must not be confused with the Georgian empress of the same name, who flourished at Tiflis in the twelfth and thirteenth centuries.

We were now in the heart of the Mountain of Languages. In those crags and forests, haunted by wolf and bear, by ibex and aurochs, by boar and by leopard, dwell innumerable tribes and races, speaking an astonishing diversity of tongues. I am credibly informed that it is no exaggeration to say that over one hundred distinct languages and dialects are spoken in the Caucasus. The difficulty of communication has isolated families, and almost every village has developed its own dialect. There appear to be three main autochthonus groups: the Georgian, in the centre and west, the Circassian, in the extreme west, and the Lesghian in Daghestan, in the east. The Georgians, whom some suppose to be the descendants of the ancient Medes, are a cultivated, orthodox people, who were christianised

long before the Russians, and their early writers throw valuable light on the early history of their part of the world. They voluntarily placed themselves under the protection of Russia about a century ago. They use a peculiar alphabet, whose elegant rounded letters somewhat resemble Burmese. Their language is, I believe, of the Iranian group. Akin to the Georgian are numbers of dialects, the chief of which are the Imeritian and Mingrelian, and Osset. The Circassians have mostly left Russian territory and migrated to Turkey, where they often become Bashi-Bazuks and have earned an uneviable reputation for ferocity. Their language is little known and is said to have affinities with the Isolating family. Other strange tribes in the Western Caucasus are the Abkhaz, who have sounds that cannot be represented by any combination of letters in any European alphabet. Then there are the Svan or Svanetes, dwelling round and at Elbruz, who live in five-storied circular towers. Two stories are underground and three in the air, and the family moves from floor to floor according to the season and the temperature. The wild mountains of Daghestan are inhabited by the Lesghian group, which at least one author has attempted to connect with the Albanians, to my mind a fatuous suggestion. Subdivisions of this group are the savage Chechents, the Tush, Ud, Kazi-Kümük, Avar, Hirkan and many others. The Lesghian and Circassian groups are Mahommedan, as are the Nogai, Kalmyck, Azerbaidjan and other Tartars, each with their own dialect, who are to be met with in the steppes north and south of the main range. On the shores of the Black Sea there are Turks, and in and around Tiflis there are Armenians, Persians and sometimes Kurds, a good sprinkling of Jews, and above the heads of all, the Russian officials. Truly, an amazing assemblage of peoples and tongues.

All too soon we reached the *stantsia* of Kazbek, where we halted for half an hour to refresh ourselves and the driver, and bask in the splendour of the scenery. Far across an opening in the hills, where the picturesque, but probably exceedingly dirty *aul*, or mountaineer's hamlet, Gerget, nestles on the slope beyond, towering up to 16,546ft., high above all others, stands the majestic cone of Kazbek itself, with the splendid glacier of Devdorak. But hardly had we grasped the full beauty of the scene, when we were ordered aboard and whirred up and up to Kobi, where the valley is broad and flat, and the Terek shrunk to a tiny rivulet. Beyond Kobi the road is constantly threatened by avalanches, so we drive through long tunnels, solidly built, over which the tumbling masses of rocks and stones slide, and leave the road intact. Soon we reach the cross that marks the highest point of the pass, 7,500ft., but the scenery is far tamer than at the *stantsia* Kazbek, and in the gorge below. At this point we cross the watershed, and bid good-bye to the Terek. We have now left Europe, and are in Asia. At the first *stantsia* in the descent, that is, Gudaur, by a great stroke of luck the car broke down for an hour, which gave me the longed for opportunity of collecting in these heights.

The slopes here are grassy, and I hoped to find some interesting alpine forms, especially of *Gomphocerus*, but the only grasshopper that I could discover was the alpine *Stauroderus apricarius*, L. A little lower are some clumps of shrubs and thickets and here I saw a female *Orphania*, but she was too nimble for me. My ear detected a familiar

chirp, which I resolutely set to work to stalk down. I was convinced it was an *Olynthoscelis*, and soon my patience was rewarded by the capture of a fine male. It was not *Olynthoscelis*, though at first I took it to be a local, and probably new species, but a *Psorodonotus*, *Ps. specularis*, F. de W. This is an interesting genus, resembling *Olynthoscelis* in appearance, with a very long pronotum, but structurally more nearly related to *Decticus*. Only three species are known, *P. fieberi*, of the Western Balkan, which I have taken on the Durmitor in Montenegro, *P. specularis* in the Caucasus and Asia Minor, and *P. inflatus*, Uv., a species recently discovered by Uvaroff, also in the Caucasus. My specimens approach the latter in the smaller size, and unarmed femora, but in the structure of the pronotum and genital parts it is indistinguishable from the larger forms of *P. specularis* from Bakuriany, on the south side of the valley of the Kura.

Our driver completed his repairs all too quickly and soon we were buzzing away down the valley of the Aragva, a torrent that has cut a fine gorge on the southern slope of the range. The scenery is very grand and rugged for many miles, and the road is the mere ledge on the precipitous flanks of the mountains. We whirred round appalling corners, with a miserable parapet, at terrific speed, and to ease our nerves the driver pointed out a yawning chasm where but a week or two before a car had gone over bodily, and fallen a thousand feet or more. I clenched my teeth and gripped my seat and trusted to Providence. Regret at reaching the milder scenery of the lower Aragva was tempered by relief at the relative safety of the drive. About 2.30 we stopped for lunch at Passanaur, 3,621ft., a picturesque village in the gorge. The menu consisted of vodka, bortch, fish, shishlik and kakhetin wine and good coffee. As I seized my net for a moment's collecting, we were ordered on board and bustled off again. The scenery is fine, but not grand; mountains have degenerated into hills, and are thickly wooded. At frequent intervals we ford torrents, up to the axles of the car, and pass caravans of savage gypsies, some of whom threw stones and curses at the car. Quickly through the village of Ananaur, 2,325ft., we entered a broad undulating plain, highly cultivated, but now burnt brown. A minute's halt at Dushet, 2,915ft., where I scorched my dusty throat with a glass of boiling tea, and took *Stauroderus bicolor*, Charp., and *Oedipoda caerulescens*, L., and off again.

The brown fields are dull and monotonous, but on the telegraph wires are perched that most exquisite creature the bee-eater, *Merops apiaster;* in beauty of colouring, elegance of build, and grace of flight, I know no bird that can rival it; they looked like living jewels flashing in the sun, as they dived off the wires, hawked an insect, and gently landed again upon their perch.

A race down a long straight road brought us to the Kura, that cuts a deep and wide valley down to the Caspian. We crossed it at the village of Mtskhet, 1,525 ft., with a quaint old Georgian church built by the Georgian Emperor, Alexander (1413-1442), to replace the older one destroyed by Tamerlane, and at last, at 8 p.m., tired, cramped, dusty, hungry, and thirsty, we reached Tiflis.*

At the comfortable Hotel London it was nice to be greeted by the

* "*Tiflis*" is probably a Tartar corruption of the Georgian name of the Town "*Dibilissi.*"

familiar face of Philip Adamovich Zaitseff, former editor of the *Révue russe d'Entomologie*, whose acquaintance I had made at the Jubilee of the Russian Entomological Society, and renewed at the Congress at Brussels. He was accompanied by Dr. R. Schmidt, the erudite Deputy Director of the Caucasus Museum, a genial soul, whose delight it was to help the traveller and introduce him to the wonders of Tiflis.

(To be continued.)

Libythea celtis. Eggs and Oviposition (*With two plates*).

By T. A. CHAPMAN, M.D., F.E.S,

Libythea celtis is nowhere very common on the Riviera, though I have seen and taken it in a number of places. Celtis trees are not abundant, and are usually of large size, such as some in the market place of Mouans Sartoux, near Cannes. They are not, therefore, very accessible, and so it resulted that I never succeeded in obtaining eggs, and was not less fortunate than various other collectors whose ambitions in this matter were much like my own. In 1909, however, I visited Amelie-les-Bains. *Celtis australis* is not very abundant here, but what there are are often young trees and shrubby growth, the region is also one in which celtis is actually grown commercially in various places. Though *L. celtis* was in no great numbers one could always count on meeting with them. I took the first specimen on April 7th, just after my arrival, and others afterwards. The trees were then showing traces of flowers and of leaves about a quarter of an inch long.

I kept some females of *L. celtis* on some celtis twigs, but no eggs were laid until a fresh spray of celtis, given them on the 16th, afforded a number of eggs on the following day. Further experiments and a close enquiry into the facts seemed to explain why eggs were now laid and none previously.

I may note by the way that in breaking into leaf in the spring *Celtis australis* displays very markedly a peculiarity that is not uncommon in other plants, but rarely so pronounced. A celtis tree may often be seen in April in which some branches seem well in leaf, whilst others are still bare as in winter, and it is found that the green branches are those that bear flowers, the bare ones are not going to do so. The peculiarity is of course largely due to this appearance of flowers all over certain branches with none on others. The young shoots bearing flowers may be several inches long before the others have appreciably moved. *L. celtis* will not lay until there is some actual spring growth, and even then it exercises what are obviously very wise precautions.

My notes say that on April 18th the flowering sprays are two to four inches long, with four or five leaves of an inch to a inch and a half long, whilst the non-flowering buds are but half an inch long, showing a little green but no leaves. The trees have a curious appearance, often a whole bush or tree appears covered with leaves, whilst another looks quite bare and wintry; a considerable proportion have certain sprays and branches well in leaf, whilst the rest of the tree looks dead (by comparison).

The flowering buds throw out male flowers (catkins?) close to their base, the central shoot carrying female flowers in the axils of the first four or five or more leaves. Already (18th) the berries are nearly as large as a small grain of wheat, and the faded male flowers, with

the chaffy scales of the original buds, form a small collection of loose rubbish at the base of the shoot.

The sprays first given to the butterflies, up to the 16th, had these chaffy remains fairly adherent, those given on the 16th had a number of the flowering shoots cleared of these. These first eggs were laid in the angle between the young shoot at its origin and the parent twig. It was plain that the butterflies would not lay on the old wood, nor on the scales and rubbish that had to fall off, and would of course carry the egg with them. Nor would they lay on the young green shoot, its leaves, or fruit. At a later date, when the leaves were well grown, they laid freely enough in the axils of the leaf-stalks, and afterwards on the undersides of the leaves themselves. I am inclined to believe that these solitary eggs would be very apt to be loosened and to fall off if laid on any part of the young green shoots that were in extremely rapid expansion and growth.

On May 3rd I saw a *L. celtis* lay an egg naturally (*i.e.*, not in captivity). It laid it in the axil of the petiole of a leaf that was about three-quarters of an inch long, the last but one on a shoot (not a flowering one) with four or five leaves; a second was laid in a precisely similar situation.

The egg when first laid is whitish or greenish-white, with a pearly lustre. In a day or two it becomes brownish-pink, harmonising with the neighbouring bark, and is thus well hidden.

Already, by April 20th, the eggs were largely laid on leaves, a count giving 2 in axils at base as the first eggs, 11 in axils of leaf stalks, and 43 beneath leaves of which there were already many of nearly full size. This, of course, in captivity.

The egg is 0·7mm. high and 0·5mm. broad, narrowing a little upward, flattened below and somewhat rounded on top. It has about 34 marked upright ribs, and the transverse secondary ribs are quite pronounced.

The accompanying photographs will give some idea of its form and structure. There are two eggs magnified 13 diameters, and three magnified 20 times.

Fig. 3, Plate xiii., shows the top of the egg-shell and the micropylar area magnified 300 times. Fig. 5, Plate xiv., gives perhaps a better view of the micropyle, also × 300. Fig. 4 is a portion of the egg-shell magnified by 120. Fig. 5 shows how the upright ribs terminate at top, except some nine or ten which continue as high flanges in ordinary Vanessid manner. These are seen bent down flat in Fig. 3, and in Fig. 4 several are seen in profile.

New Species and new Forms of Lepidoptera.

By COUNT EMILIO TURATI, F.E.S., Etc.

I am very pleased to forward short Latin descriptions of a number of new Lepidoptera brought from Sardinia by Mr. Geo. C. Krüger, Custos of my Lepidopterological collection in Milan, who stayed seven months this year on my account in this interesting, and almost unknown, Mediterranean island. Putting aside the butterflies, his attention was almost wholly turned to the moths, and he succeeded to such an extent as to discover eleven new species and twelve new aberrations or local forms of known species; a veritable record for a collector in

the strictly European part of the Palæarctic fauna. To record such an achievement the *Entomologist's Record* is, therefore, I believe, the most suitable medium. Further particulars and plates, I will give later on in the *Atti della Società Italiana di Scienze Naturali* of Milan.

EPINEPHELE TITHONUS, L., FULGENS, n. F.

Forma supra colore flavo-fulvescenti fulgido, marginibus brunneis, nigrescentibus. Subtus magis variegata, apicibus et partibus flavis, sulphureis. ♂ androconiis paullulum effusioribus, distincte a venis fulvis intersectis. ♂ et ♀ plerumque pluriocellatis (Forma *excessa*, Tutt). 25 ♂ ♀ Aritzo, mense julio.

OCNERIA KRUEGERI, n. sp.

♂ mm. 33-37, ♀ mm. 40.

Sp. alis anticis rufescentibus, subroseis, strigis tribus transversis sinuatis nigris diffusis, media latiore et aliquantum obliqua. Alis posticis fuscis, roseo villosis; fascia marginali nigrescenti. Ciliis omnibus roseis, fusco intersectis. Subtus omnino fuliginosa, ad basim atque ad margines internos quatuor alarum plus minusve lutescenti-subrosea. Capite et antennis rufo-brunneis; thorace eodem colore, sed juxta occiput subroseo, oculis nudis nigris. Abdomine supra roseo; tribus posticis segmentis, et subtus brunnescenti: linea dorsali vix indicata; cruribus et tibiis lanosis brunnescenti-subroseis; tarsis nudis obscuris, roseo articulatis. ♂ antennis bipectinatis fere duplo crassioribus quam in *atlantica*, Rbr.; debilioribus quam in *lapidicola*, H.S., *urbicola*, Stgr., et *phoenissa*, Stgr.; ♀ longo-ciliatis.

Kruegeri differt ab his speciebus strigarum forma et directione, antennarum constitutione, atque alarum quadratura.

20 ♂ 1 ♀ Gennargentu, alt. m. 1200-1400, mensibus julio et augusto.

Georgio Kruegerio dicata.

AGROTIS (EUXOA) JORDANI, n. sp. et CHALYBAEA, n. F.

♂ mm. 37, ♀ mm. 35-36.

Sp. *Agrotis obscura*, Brahm., aliquot similis, sed alarum structura magis elongata; fere unicolori brunneo-fulvescenti; strigis (proximali et distali) duplicatis, vix perspicuis; linea antemarginali nigra, cuneata satis distincta. Macula orbiculari clariori parva, nigro centrata; reniformi obscurissime expleta et in cellula proximaliter clarius lunulata. Punctis costalibns ante initium lineæ antemarginalis tribus lutescentibus. Alis posticis obscure griseo-fumosis; ciliis clarioribus. Thorace et capite concoloribns brunneo-fulvescentibus; palporum articulo extremo lutescente. Abdomine griseo.

♂ antennis lutescentibus biserratis, juxtabasim et posteriore tertio ad verticem imminutis; ♀ filiformibus. Subtus alis concoloribus griseo-lutescentibus ad costam vix obscuratis. Alis posticis linea antemarginali et lunula mediana brunnescentibus. Cruribus brunnescentibus; tarsis luteo articulatis.

2 ♂ 4 ♀ Monte "Cugnada" mense Octobre.

Doctori Karolo Jordano dicata.

Forma CHALYBAEA = colore griseo-glaucescenti (*Agrotis senna*, H.S., simili) lineis nigris et fasciis perspicuis.

1 ♀ Monte "Cugnada," mense Octobre.

AGROTIS (LYCOPHOTIA) KERMESINA, MAB., VIRESCENS, n. F.

mm. 34.

Forma alis anticis, thorace et capite concoloribus olivaceis, dilute subroseis. Abdomine paullulum clariore. Alarum ant. lineis transversis perspicuis: proximali atque distali e punctis intercostalibus obscuris constitutis, mediana latiore, biarcuata, et subtermacula reniformi cuspidata: linea submarginali brunnescenti. Maculis: orbiculari obliterata, reniformi fere indistincta, tantum ad cuspidem lineæ medianæ obscure signata.

18 ♂s hujus formæ cum novem maribus formæ originalis simul capti. Monte "Cugnada," mense Septembre.

BRYOPHILA RAPTRICULOIDES, n. sp. et MARMORATA, n. F. et MEDIOSTRIGATA, n. F.

mm. 27-28.

Sp. statura ampliore et robustiore quam *raptricula*, Hb., quadratura alarum latiore. Colore cinereo, macula brunnescenti (orbicularem includenti) non diffusa, sed plerumque nitida. Strigis et signaturis distinctis tenuiter virgatis, lunula albicante apud marginem internum. Alis posticis griseo-fuscis, non albicantibus. Capite et patagia cinereis.

1 ♂ 3 ♀ Aritzo mensibus junio et julio 1910, 1912. 1 ♀ ex Sicilia "Ficutiæ luco," alt. m. 800, mense julio 1909.

Forma MARMORATA = colore brunneo nigrescenti, lunula (aliquot elata), spatio apicali post lineam distalem et spatio postbasilari lacteis, vel sordide albidis.

1 ♀ Aritzo mense julio. 1 ♀ e Corsica jam in mea collectione.

Forma MEDIOSTRIGATA = colore ut *raptriculoides*, sed macula brunnea effusiore, striga nigra in costa media, usque ad cilia prolongata, a lunula alba intersecta.

Forma *raptricula*, Hb., *striata*, Stgr., analoga.

2 ♀s. Aritzo, mense augusto.

LUPERINA (APAMEA) KRUEGERI, n. sp.

mm. 27-28.

Sp. *Lup. nickerlii*, Frr., et *gueneei*, Dbd., proxima, sed alis anticis minus elongatis, colore ambabus dissimili pallide lutescenti, nigro asperso. Signaturis nigris sed—quamvis iisdem similibus—strigis (proximali et distali) ad marginem internum constrictioribus: proximali bis lunulata non angulata. Maculis (orbiculari et reniformi) distinctis, lutescentibus, non albido cinctis. Fascia antemarginali undulata lutescente cum tribus lineolis nigris sagittatis proximaliter apud apicem e costa dehiscentibus; quot lunulis confuse nigrescentibus juxta marginem internum. Linea marginali lutescenti, et submarginali ex triangulis vel cuspidulis nigerrimis constituta. Ciliis longioribus griseo-intersectis.

Capite thoraceque griseis—lutescentibus, plus minusve nigro, non brunneo, mixtis. Abdomine albescente, alis posticis albido sericeis, vix subluteis, linea marginali tenuissima nigra; ciliis albescentibus, vix puncto nigro et linea antemarginali apparentibus.

Subtus alis omnibus albidis, paullulum, præsertim ad costam, griseo-fusco adspersis. Punctis cellularibus et linea marginali, ut supra, nigris. Antennis dentatis, griseo-lutescentibus. Cruribus

griseo-mixtis; tarsis anterioribus nigro-brunneis lutescenti-articulatis; tibiis et tarsis posticis clarioribus.

19 ♂ s. Gennargentu, alt. m. 1,400-1,800, mense augusto.

Georgio Kruegerio dicata.

(To be concluded.)

NOTES ON COLLECTING, Etc.

CAMPTOGRAMMA FLUVIATA IN NORTH LONDON.—On October 11th I took a freshly emerged male *Camptogramma fluviata* at Highgate. It was sitting on a painted fence which was badly sun-blistered, and the moth closely resembled the broken "blisters." The specimen is slightly asymmetrical, the band being complete on the right wing and broken on the left.—RUSSELL JAMES, Junr., "Brockenhurst," Bloomfield Road, Highgate. *November 13th.*

SOME RACES OF ANTS NEW TO BRITAIN.—*Myrmica sabuleti*, Meinert. I have this form from Surrey, Hants, Devonshire, and Sussex, having taken it myself in the first three counties. Emery considers it a var. of *scabrinodis*, Nyl. In the ♂ the scape of the antennæ is much longer than in typical *scabrinodis*, and I find the ♀ s and ☿ s have the tooth on the antennal scape much more developed. I hope shortly to publish a paper which I have nearly finished on the genus *Myrmica*, and will then deal more fully with *sabuleti*.

Leptothorax tubero-affinis, Forel.—Crawley and I found this race in some numbers in the New Forest in July last. We took ♂ s and winged ♀ s, and also deälated ♀ s, in the nests with the workers. They were nesting under stones, often in close proximity to *Tetramorium* nests.

I may here mention that we do not appear to possess *L. unifasciatus*, Latr., in Britain. Forel has now seen all the specimens standing under that name in the British, Oxford and Cambridge Museums, which include Saunders', and the Rothney and Dale collections, etc., and also my own specimens, which I took at St. Margaret's Bay, and they none of them were *unifasciatus*, but belong to the race *L. tuberum*, F., the *tuberum* proper. All records of *unifasciatus* in Saunders' *Hymenoptera*, etc., will have to be corrected. I was never able to make specimens named by Saunders *unifasciatus* agree with Forel's table. This led to my arranging for the latter to see all the specimens I could. Crawley took some of these and I others on our visit to Forel.

Formica picea, Nyl.—This is the species described by White, *Ants and their Ways*, p. 253 as *glabra*, and is doing duty as *gagates*, Latr., in the British list. Arnold found a nest in the New Forest some years ago, and Crawley and I found another in the same locality. I shall publish the differences shortly. The synonomy is as follows:—*F. picea*, Nyl. *F. glabra*, W. F. White. *F. gagates*, Saunders, *nec.* Latr.—H. DONISTHORPE.

CURRENT NOTES AND SHORT NOTICES.

Dr. Fr. Zacher has an article in the *Zeitschrift für wissenschaftliche Insektenbiologie*, 1912, pp. 276-284, on the male genitalia of the *Eudermaptera*. We do not find here such a variety of forms as in the *Protodermaptera*, but the author finds material for proposing an arrange-

ment on lines similar to that adopted in the more primitive group, differing but little from that offered by Burr in the *Genera Insectorum*. It is noteworthy that in this higher group of earwigs we find a more uniform and simple type of male genital organ; the suggestion being that the diversity of type shown in the *Protodermaptera* is a series of experiments on the part of Nature, aiming at an ideal form.—M.B.

The Annual Pocket-box Exhibition of the South London Entomological and Natural History Society, on Thursday, November 28th, was a great success. Each year this Society seems to outdo itself. There were more than a hundred members and their friends from other societies present in the room, a large proportion of whom brought exhibits. The exhibits themselves were mainly Lepidoptera, and were extensive, varied, and interesting. A full report of them will be published later. In the meantime we have been asked, in the interests of the general lover of nature, of the younger members and of the visitors, to ventilate a grievance. Many of the exhibitors did not, or did not adequately, label their exhibits with their specific names and indicate full details of the purport of the exhibits, not even was the name of the exhibitor on the box. These deficiencies are often much accentuated by two other circumstances, both, however, more or less unavoidable; first it is impossible for those examining exhibits which are passing round the room to, at the same time, attend to what is being said by other exhibitors at the table, and secondly, it is often impossible for those not sufficiently close up to be able to hear what is said by the exhibitor. It seems advisable in future that a special request should be made to all intending exhibitors to adequately label their boxes with (1) specific names, (2) the full purport of the exhibit, and (3) the exhibitor's name.

In the *Entomological News* for October is a most interesting article by Mr. A. A. Girault, of Brisbane, Australia, recounting his "Experiments with the Effects of the Protective Vapours of Heteroptera on Other Insects." In each case two vials were taken. In one the Heteropteron was introduced and was kept for some time, occasionally being roughly shaken up to cause it to discharge its vapour. Ants, aphids, and other small insects were then obtained, the bug hastily removed and one ant introduced into the infected vial, while the other ant was put into the clean vial and used as a control. In most of the experiments, when properly carried out, it was found that the insect placed in the infected vial more or less rapidly succumbed to the influence of the vapour, while the insect in the control vial was absolutely unaffected by its confinement. Mr. Girault sums up the result by saying, "There can be little doubt from what has been recorded that the vapours emitted by certain Heteroptera are highly noxious to certain forms of insect life, in many cases quickly stupefying some insects when the latter are exposed to them in an air-tight receptacle." And again, "The actual protection must consist in being distasteful or obnoxious, not in causing serious injury, stupor or death to the attacking animals, since the latter must involve, under natural conditions, actual handling or even swallowing of the protected insect, in order that the protective vapour would have time to be effective, even if then effective." And still again, "It works through the memory of the young attacking animals, not stupifying or killing them, but giving them such an experience of unpalatableness, that they soon learn to avoid attacking."

The Officers and Council nominated for the Entomological Society of London for the ensuing year are as follows:—*President*, G. T. Bethune-Baker, F.Z.S.; *Treasurer*, Albert H. Jones; *Secretaries*, Rev. G. Wheeler, M.A., F.Z.S., and Commander James J. Walker, M.A., R.N., F.L.S.; *Librarian*, George C. Champion, F.Z.S., A.L.S.; *Council*, R. Adkin, Jas. E. Collin, J. Hartley Durrant, Stanley Edwards, F.Z.S., F.L.S., H. Eltringham, M.A., F.L.S., A. E. Gibbs, F.L.S.; Rev. F. D. Morice, M.A., Gilbert W. Nicholson, M.A., M.D., Hon. N. C. Rothschild, M.A., F.L.S., F.Z.S., W. E. Sharp, J. R. le B. Tomlin, M.A., and Colbran J. Wainwright.

REVIEWS AND NOTICES OF BOOKS.

THE COLEOPTERA OF CUMBERLAND. By Frank H. Day, F.E.S.* The first two instalments of a catalogue of the Coleoptera of the County of Cumberland have now been published, and we may congratulate the Natural History Society of the Border City on having been the means of greatly extending our knowledge of the distribution of an important part of the insect fauna of this country. Although the author has been handicapped, as are all compilers of strictly county faunal or floral lists, by the quite unnatural limits imposed by boundaries so artificial as those of a county, in this case, perhaps, more than usually unfortunate since it involves the exclusion of Westmoreland and north Lancashire, areas which form in a faunistic sense one indivisible whole, yet, because this region contains within itself the loftiest mountain system of England, of which the centre and highest peaks fall within the County of Cumberland, a record of the Cumbrian beetles cannot but prove more interesting because more specialised than that of the majority of English Counties.

That Mr. Day has done his work well hardly needs asserting in the pages of this magazine; "fit, though few" may be said of the Cumbrian Coleopterists, and in Mr. Britten, Mr. Routledge, and Mr. Murray, the author has found very able assistants. When we learn that previous to the labours of these four students, not more than some 500 species of beetles had ever been recorded from Cumberland, it becomes evident that a much larger part of this list must represent original work than is the case in many of our local catalogues, where ampler harvests have been gathered by those who have gone before.

Nor is this commencement from some approach to a *tabula rasa* without its compensations, most of us, indeed, who have been responsible for the compilation of faunistic lists, know but too well how often embarrassing as much as helpful are the records of the past, uncorroborated and impossible of verification, the specimens beyond recall, and the records themselves too often convincing in inverse ratio to their interest.

In the present case Mr. Day seems to have had but two precursors of any importance, T. C. Heysham who died in 1857, and the much better known, at any rate to modern Coleopterists, T. J. Bold. Northumberland, however, more than Cumberland, was the theatre of the activities of the latter and his incursions into Mr. Day's sphere

* Pts. I. and II. published in the *Transactions of the Carlisle Natural History Society*, Vol. I. (1909), p. 122, and Vol. II. (1912), p. 201.

seem to have been only partial and sporadic. Thus the bulk of the records in the present list are due entirely to the exertions of Mr. Day and his three friends.

Now the only object of such a careful enumeration of the Coleoptera of a limited area as we have before us, apart from merely providing a useful manual for collectors, is to increase our knowledge of the distribution and possibly of the derivation of the British fauna, and from this point of view it may be interesting as well as instructive to compare two English areas as dissimilar as may be possible in the same country. For this purpose the county of Kent suggests itself as suitable. Kent differs from Cumberland as widely as regards situation, climate, physiography, geology and flora, as any two counties in England very well can, their only features in common being the possession of a sea coast, and the shore of a wide estuary.

Now let us see how they differ in their Coleopterous populations as regards the four major groups under review.

This the following table will briefly show.

	Total British Species (1).	Recorded Kentish Species (2).	Recorded Cumbrian Species.	Cumbrian Species unrecorded from Kent.	Kentish Species unrecorded from Cumberland.	Recorded Species common to both Counties.
Geodephaga ..	316	227	175	44	96	131
Hydradephaga	131	73	81	29	21	52
Palpicornia ..	97	76	61	12	27	49
Brachelytra ..	789	566	512	102	156	410
	1333	942	829	187	300	642

(1) As given in the latest British list, that of Beare and Donisthorpe 1904.
(2) As given in the "Kent" of the *Victoria County Histories*.

Now from these figures many inferences might be drawn on which it is hardly within the scope of this notice to dilate, but at least it demonstrates that the Coleopterous population of these counties is very different. The actual diminution in this distance of about 400 miles is not perhaps conspicuously great, being not more than 12% of the major total; what is undoubtedly more significant is its specific difference—thus in the four groups we are considering, groups which can only be slightly and indirectly affected by a differing flora, we find that of 942 Kentish species, 300 or nearly one third are unrecorded from Cumberland, but that these are replaced by 187 species similarly unrecorded from Kent. In many cases whole Southern genera are unrepresented by a single Northern species, thus in *Geodephaga*, 18 genera recorded from Kent are unknown in Cumberland, while only 2 Cumbrian genera are unknown from the Southern county.

No doubt more than one interpretation might be placed on these salient facts, and it seems incontestable that some considerable influence must be attributed to so great a climatic and physiographical disparity as these counties exhibit, but this is probably not all, it would seem indeed a tenable hypothesis that of these 300 Kentish but not Cumbrian species, many form part of a South-Easterly invasion from the Continent, of course at a time previous to the complete insularity of Great Britain, which had died out before it had been able to reach Cumberland, while a large proportion of the 187 Cumbrian species unknown in Kent may represent the survivors of an antecedent Coleopterous population, extirpated throughout the greater part of

England, either by a secular change of climate, or by the competition of a later migration, or by both forces combined. As to the 642 species common to both areas, we may perhaps regard them as more or less dominant forms, that is, such as possess a sufficient organic plasticity to allow of their adjusting themselves to conditions fatal to other and even closely related species.

Leaving, however, these larger speculations for a more detailed consideration of the various species enumerated by Mr. Day, a record that at once arrests our attention among the *Geodephaga* is that of *Lebia crux-minor*. Capricious as are the appearances of this rare insect, its occurrence in Cumberland only deepens the mystery of its range and of its economy, and many more captures will be necessary before we can attempt any satisfactory explanation of why it should appear so rarely and so sporadically. Another beetle whose occurrence on the mountains of Cumberland may well surprise the Southern Coleopterist is *Calathus fuscus*, a species usually associated with the sandy sea shore of the South of England.

Among the *Staphylinidae*, *Autalia impressa* is an insect on whose capture Mr. Britten may be congratulated, while his record of *Hypocyptus apicalis* "among ivy on old walls," certainly extends our knowledge of the economy of that species. *Tachinus rufipennis* is also another noteworthy capture of Mr. Britten, as is *Staphylinus fulvipes* of Mr. Day.

Limits of space, however, forbid an extended reference to many other interesting records contained in these two papers, which will either by their rarity or unexpectedness detain the attention of the Coleopterist reader. Of a few records which could not easily have been excluded by Mr. Day, although neither he nor his co-workers are responsible for them, confirmation by more recent captures would, it must be admitted, be very acceptable—such are *Notiophilus rufipes*, *Elaphrus lapponicus*, *Badister sodalis*, *Hydroporus halensis*, the two species of *Paederus* (about which Mr. Day himself hints a doubt) and *Bledius erraticus*.

Two names in the list certainly deserve special mention, *Hydraena britteni*, Joy, and *Thinobius pallidus*, Newbery, species described quite recently as new to science from Cumbrian specimens, while another, *Homalium brevicolle*, Thoms., was added to the British list in 1909 on captures made by Mr. Day and Mr. Britten. Cumberland, even limited faunistically as it is for the purpose of this list by its boundaries, offers perhaps as varied physiographical conditions as any county in the British Isles. It includes lofty mountains, lakes, rivers, mosses, and woodlands, the sandhills of the coast, and the mud flats of the Solway estuary, and the extension of the range of the ant *Formica rufa* within its borders ensures the habitat for several myrmecophilous Coleoptera absent from many of our northern counties, hence we are not surprised to find so large a Coleopterous fauna within it. We shall anticipate with an interest which we think our readers will share those further portions of this list which will deal with the remaining groups of the order, and we trust that the completed work may be obtained in such a form as to make it possible for every Coleopterist to place, as we are sure they will be glad to do, the Coleoptera of Cumberland in one complete volume on his shelves beside the other local records of the order which already exist and

which have done so much to extend our knowledge of the distribution of our British Beetles.—W. E. S.

SOCIETIES.

THE ENTOMOLOGICAL SOCIETY OF LONDON.—*October 2nd*, 1912.—Miss Lily Huie, Hollywood, Colinton Road, Edinburgh, was elected a Fellow of the Society. The death was announced of the Hon. Fellow, Prof. L. Ganglbauer, of Vienna, and also of Messrs R. Shelford, M.A., F.Z.S., E. A. Fitch, F.L.S., and G. H. Grosvenor, M.A. AN ABERRATION NEW TO BRITAIN.—Dr. Nicholson showed three specimens of *Adalia obliterata*, L., ab. *sublineata*, Weise, an aberration not as yet recorded from Britain. DARK ABERRATIONS OF ABRAXAS GROSSULARIATA.—Mr. G. T. Porritt exhibited various forms of the variety *nigrosparsata*, together with the type specimen of var. *nigra*. COLEOPTERA FROM OXFORD.—Commander J. J. Walker exhibited series of the following rare species of British Coleoptera, recently taken in the Oxford district:—*Lathrobium pallidum*, Nord., *Apium annulipes*, Wenk., ♂ and ♀, *Psylliodes luteola*, Müll. "INSECT-CATCHING GRASS."—Commander Walker also exhibited on behalf of Mr. A. M. Lea, a specimen of the so-called Insect-catching grass (*Cenchrus australis*) from Cairns, N. Queensland, with several *Coleoptera*, belonging to various genera, adhering to the spinous awns. ABERRATION OF PYRAMEIS CARDUI.—Mr. R. M. Prideaux brought for exhibition a beautiful aberration of *P. cardui*, closely resembling one figured by Newman. DIMORPHIC HOMOPTERA.—Mr. C. J. Gahan exhibited a small series of *Phromnia superba*, Melich, a dimorphic species of Homoptera of the sub-family *Flatinae*, taken by Dr. A. C. Parsons in Northern Nigeria. WEST AFRICAN HOMOPTERA.—Mr. W. A. Lamborn exhibited a series of twelve *Homoptera* of the genus *Flata*, all taken feeding on one plant, 70 miles E. of Lagos, on December 1st, 1912. EUCHELIA JACOBÆÆ, L., CAPTURED AND THEN ABANDONED BY A ROBIN.—Prof. Poulton exhibited an apparently uninjured example of *E. jacobaeae* given him by Mr. Roland Trimen, F.R.S. The moth was flying slowly at midday in his garden at Woking, when a robin captured it on the wing and flew with it behind a bush. After about three minutes the bird flew away, and Mr. Trimen found the moth lying upon the ground. ABERRATIONS OF ALPINE LYCÆNIDS.—Dr. T. A. Chapman exhibited several unusual forms of some common "Blues" taken this year in the Valley of the Isère and at Courmayeur. He said that the "blues" of this region are generally large and more than usually variable; and that it is also the head-quarters in Western Europe of *Agriades alexius*, Frr. SCARCE ANTS.—Mr. Donisthorpe exhibited a number of ♂ ♂ of *Ponera coarctata* which he had swept at Box Bill, and remarked that no one living appeared to have taken ♂ ♂ in Britain. Also ♂ ♂, ♀ ♀, and ☿ ☿ of *Formicoxenus nitidulus*, taken in a nest of *F. rufa* at Weybridge. Also ♂ ♂, ♀ ♀, and ☿ ☿ of *Leptothorax tubero-affinis*, a form new to Britain. Also a ♂, and winged and deälated ♀ ♀ of *Anergates atratulus*, which lives in the nests of *Tetramorium caespitum*. CELASTRINA ARGIOLUS ON A NEW FOOD-PLANT.—Mr. Hy. J. Turner exhibited on behalf of the Rev. C. R. N. Burrows, a long series of bred *Celastrina argiolus*. The larvæ had occurred each year for some time past in the garden at Mucking, feeding on Portugal laurel, attacking the flower buds in the early summer. The form closely resembled the Nearctic form *pseudargiolus*. THE GENUS DIANTHOECIA.—Mr. L. W.

Newman exhibited specimens of *Dianthoecia*, bred from North Kent wild larvæ, resembling exactly, both in size and coloration, *Dianthoecia capsophila* from the Isle of Man. This appeared to confirm the opinion of several leading men that *D. capsophila* and *D. carpophaga* are the same species. He also showed for comparison varied series of *D. carpophaga* with a pair of *D. capsophila* and *D. capsincola*. COLIAS HECLA FROM FINMARK.—Mr. W. G. Sheldon exhibited a series of *C. hecla*, from the Porsanger Fjord, Arctic Norway, with specimens of the other orange species occurring in Europe for comparison. A LIVING EARWIG.—Mr. W. J. Lucas exhibited a living ♂ of *Labidura riparia* (the Giant Earwig), taken on the shore near Christchurch, Hants. He also exhibited a drawing giving the colour of the living insects, and demonstrating how well they are protected by resemblance to the pale sand of the Hampshire coast. PYRENEAN LEPIDOPTERA.—Mr. G. T. Bethune-Baker showed specimens of *Hepialus pyrenaicus*, a species found not uncommonly on the higher parts of Mount Canigou, with the apterous female. Also a fine form of *Lycaena arion*, and a specimen of *Heodes hippothoë* that was at once radiated, obsolescent and asymmetrical. ALPINE BUTTERFLIES.—Mr. Douglas Pearson exhibited a drawer of Rhopalocera from the Black Forest and the Swiss Alps, including an albinistic specimen of *Erebia lappona*, the large Black Forest form of *Colias palaeno*, *Brenthis pales* from Pontresina, with underside, hind-wings of a deep purple-red, and others. EGG-LAYING OF EREBIA GLACIALIS.—Mr. J. A. Simes read the following note:—"On the 15th July, 1912, I came across *Erebia glacialis* in some numbers on a scree slope below the summit of the Colette de Gily, Dauphiny, and saw a ♀ alight on a piece of loose rock on the slope, sun itself for a time and then proceed to walk slowly backwards until it reached the lower end of the rock. It then bent its abdomen underneath the slab of rock and deposited an egg on the lower surface of it." DELAYED EMERGENCE OF A BEE-IMAGO (OSMIA SP.) — The President exhibited a species of *Osmia* and its cell, found three and a half years ago beside a little stream at Jericho, which only emerged during the Oxford Congress this year. ABERRATION OF BRENTHIS SELENE.—Mr. H. Baker Sly exhibited a very dark example of *Brenthis selene*, having the under-wings clouded with dark brown all over, except for a slightly lighter shaded spot in the middle, and the upper-wings very heavily clouded with dark brown. He also showed a specimen of *Epinephele jurtina* (*janira*), one upper-wing having a white blotch at the tip, and also the under-wing on the same side with a white streak. The following papers were read:—"Life History of *Lonchaea chorea*," by A. E. Cameron, M.A., B.Sc.; communicated by H. S. Leigh, F.E.S. "A few Observations on Mimicry," by W. J. Kaye, F.E.S.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY.—*September 26th.*—VARIETIES OF "BLUES."—Dr. Chapman exhibited varieties of "blues" taken in the French Alps this year where several species were of unusually large size; they included *Polyommatus icarus* resembling *P. escheri*, *Agriades thetis* ab. *punctifera*, a possible hybrid between *H. damon* and *A. coridon*, etc. BRED PACHYGASTRIA TRIFOLII AND VARIETIES OF BUTTERFLIES.—Mr. Colthrup, long series of *Pachygastria trifolii* from Romney and Eastbourne, the former showing much variation, especially in the males, specimens of *Satyrus semele*, with the eye spot in the anal angle of the hindwings

absent, an unusually large example of *Colias edusa* var. *helice*, etc. A BROOD OF P. MACHAON.—Mr. Newman, a long bred series of *Papilio machaon*, of fine size mostly, but only showing trivial variation, in size and position of the discoidal spots, in the amount of blue in the hindwings, in the breadth and depth of colour of the transverse bands, etc. THE COQUILLA-NUT BEETLE.—Mr. Hugh Main, a beetle, *Caryoborus nucleorum*, bred by him from the Coquilla nut, previously exhibited with the larva in it, by Mr. Joy. A SICILIAN COLEOPTERON AND SEVERAL LOCAL BRITISH SPECIES.—Mr. J. P. Barrett, the larvæ of *Cebrio gigas* (?) a Coleopteron occurring somewhat freely in his son's garden in Messina, doing injury to his potatoes, a short series of *Lycaena arion* from Cornwall, *Ægeria muscæformis* and *Dianthoecia luteago* var. *ficklini*, from the same county, and a huge earthen cocoon of *Manduca atropos*. BRENTHIS PALES.—Mr. Curwen, a very varied series of *Brenthis pales* from Switzerland. A RARE COLEOPTERON.—Mr. Blenkarn, the rare Coleopteron, *Henoticus serratus*, taken in the offices of Messrs. Moët and Chandon, Northumberland Avenue, and a series of bred *Porthesia chrysorrhoea* from Sandown, including two with bright golden anal tufts instead of the unsual rich brown. A RARE ORTHOPTERON.—Mr. Lucas a living female of the rare Orthopteron, *Metrioptera roeselii*. C. ARGIOLUS BRED FROM PORTUGAL LAUREL.—Mr. Turner, for Rev. C. R. N. Burrows, a beautiful series of *Celastrina argiolus* bred from larvæ taken on Portugal Laurel, notable for their large size and brilliant coloration, approaching the American form *pseudargiolus*.—*October* 10*th*.—BRITISH EARWIGS.—Mr. Lucas exhibited specimens and detailed drawings of the various species of British Earwigs to illustrate his paper, with living examples of the very local *Labidura riparia* from Christchurch. A. ORNATA VAR.—Mr. Tonge, a very dark marked example of *Acidalia ornata* from Reigate. LAPLAND COLIAS.—Mr. Sheldon, a long series of *Colias hecla* from N. Lapland, with examples of other European *Colias* species for comparison. NOLA ALBULALIS.—Mr. Adkin, specimens of *Nola albulalis* bred from larvæ that had hybernated in confinement. A. CORIDON AND E. QUERCINARIA VARIETIES.—Mr. Newman, a long series of *Agriades coridon* including several ab. *semisyngrapha* from Royston, and showing in the ♀ s, much variation in the ground-colour of both upper and under surfaces, and 3rd generation specimens of *Ennomos quercinaria*, all with the apex of forewings dark; 25% of the 2nd generation had been melanic, of dark chocolate colour. PAPER.—Mr. Lucas read a paper "Earwigs that breed in Britain," and illustrated his notes with a large number of lantern slides.—*October* 24*th*.—DONATION TO THE COLLECTION.—The Secretary exhibited four specimens of *Abraxas grossulariata* ab. *varleyata*, presented to the Society's cabinet by Mr. G. T. Porritt. SWISS BUTTERFLIES.—Mr. Ashdown, a collection of Butterflies made during his holiday in Switzerland in June and July. PHOTOGRAPHS.—Mr. Colthrup, a series of very fine photographs of lepidoptera at rest and of famous entomological localities. MR. NEWMAN'S BREEDING AND HYBRIDS.—Mr. Newman, one *Colias edusa* and four var. *helice*, which he had bred this year from a captured var. *helice*, some *Pyrameis atalanta* with smoky-red bands, and a fine series of autumn-bred hybrid *ocellatus-populi* showing much variability. These last had not been forced. T. BISTORTATA, 2ND BROOD.—Mr. Tonge, a long series of *Tephrosia bistortata*, bred from a captured ♀ from Tilgate Forest.

AN UNCOMMON PYRALE.—Mr. Kaye, an uncommon Pyrale, *Aglossa cuprealis*, captured in his house at Surbiton. EXOTIC PAPILIOS.—Mr. Edwards, the exotic Papilios, *P. iacicus*, from S. America, and *P. helleri* and *P. andraemon*, from Mexico. LIVING P. C-ALBUM.—Mr. L. Gibb, a living example of *Polygonia c-album*. EUPITHECIIDS.—Mr. Adkin, short series of *Eupithecia innotata* and *E. fraxinata*, and initiated a discussion on the specific stability of these as two separate species. PIERIS NAPI OF 1912.—Mr. Grosvenor, two drawers of *Pieris napi*, showing the geographical variation occurring in the British Isles. LAPLAND BUTTERFLIES.—Mr. Sheldon, all the species of the genus *Erebia* known to occur in Scandinavia, and which he had taken in his trips there during 1911 and 1912.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY.—*October* 21*st*. —Mr. Wm. Webster, Vice-President in the chair. This being the opening meeting of the season was devoted to exhibits of the past season's work. Mr. F. N. Pierce showed a box of Lepidoptera from Silverdale, Lancs., which included *Hamearis lucina*, *Brenthis euphrosyne*, and *Euclidia mi*; from Tansor, Huntingdonshire, *Schoenobius mucronellus*, *S. forficellus*, *Acentropus niveus*, *Hydrocampa nympheata*, *H. stagnata*, and *Paraponyx stratiotata*; also *Scopula ferrugalis* from Oxfordshire. Mr. L. West exhibited his recently published work *The Natural Trout-Fly and its Imitations*, containing a fine series of coloured illustrations of the flies used by the angler for trout together with a set of the artificial flies, inserted on special pages. Mr. B. H. Crabtree, two drawers containing his very fine series of variations of *Abraxas grossulariata*, including vars. *nigra*, *nigro-sparsata*, *nigro-caerulea*, *flavofasciata*, *hazeleighensis*, *lutea*, *varleyata*, and other striking forms. Mr. R. Tait, Jun., a long bred series of *Agrotis ashworthii*, with vars. *substriata*, and *virgata*, a very fine set of *Agrotis agathina*, including var. *rosea* and a melanic form of *Boarmia repandata*, from North Wales; *Leptosia sinapis*, *Colias edusa*, *Ligdia adustata*, *Bapta temerata*, *Melanippe galiata*, from south Devon; *Tephrosia luridata*, from Wyre Forest, and *Nyssia zonaria*, from Conway. Mr. W. A. Tyerman exhibited the following species from Ainsdale, *viz*:—*Procris statices*, *Neuria reticulata*, *Dianthoecia nana*, *Plusia festucae*, *Phibalapteryx lignata*, and *Eupithecia satyrata* var. *callunaria*. Mr. W. Mansbridge showed Micro-lepidoptera collected in Lancashire and Cheshire during the past season, *viz*:—A long bred series of *Tortrix costana* with melanic and intermediate variations, a long bred series of *Mnemonica* (*Micropteryx*) *unimaculella*, *Coleophora fuscedinella* and *C. lutipennella*, *Ornix betulae*, *Lithocolletis quercifoliella*, and *L. cramerella*, from Delamere; *Pancalia loewenhoekella* and *Pyrausta purpuralis* from Grange, the last being very brightly coloured. Mr. Prince, a bred series of *Cidaria reticulata*, from Windermere, *Nemeophila plantaginis* var. *hospita*, from the Lake District, and many coast species.

OBITUARY.

William Forsell Kirby. (*With portrait.*)

Although William Forsell Kirby was a naturalist by profession, and had a world-wide reputation as a writer on various orders of insects, besides being the author of more popular works on Natural History, he was a man of great erudition, and took a considerable

interest in various branches of general science, literature and philosophy. His vast reading and great knowledge caused him to be constantly applied to by friends and correspondents whenever they required information, on all manner of subjects, and in the true spirit of science Mr. Kirby was always ready with his advice and help. On the other hand, Mr. Kirby was a most gentle and retiring man, whose fear of injuring others prevented him from putting himself forward, and taking a place which his great talents would have deserved.

William Forsell Kirby was born on January 14th, 1844, at High Street, Leicester, and was the eldest son of Samuel Kirby, banker. His mother's maiden name was Lydia Forsell. In 1854 his father died, and in 1857 the family removed to Burgess Hill, and afterwards to Brighton. In Brighton Kirby became acquainted with several entomologists and other naturalists, including Henry Cooke, Frederick Merrifield, and J. N. Winter, and he became a member of the Brighton and Sussex Natural History Society. He continued to collect insects together with sea-shore objects, and his first published writings appeared in the *Entomologist's Weekly Intelligencer.** In 1858 he published his *List of British Rhopalocera.* In 1860, Kirby left Brighton and came to London, and entered the business of Messrs. Williams and Norgate, where he remained until 1866, with the exception of an interval in 1864, which was spent in studying chemistry under Dr. T. W. Wood. It was at this time that he joined the Entomological Society of London, and in 1862 he published his first work of importance, *A Manual of European Butterflies.* This brought him into notice, and he became known to the famous entomologists of the day, J. O. Westwood, H. T. Stainton, W. C. Hewitson, H. W. Bates, Dr. H. G. Knaggs, and others.

The year 1866 was chiefly spent in Germany, where Kirby married Miss Johanna Maria Kappel, to whom he was devotedly attached and who, until her death in 1893, took a great interest in and assisted him with his literary work. While on the Continent he collected insects and plants, and studied German, Italian and Persian. Kirby was an early disciple of Darwin, as shown in a paper read before the Entomological Society as early as January, 1863. In 1867 Kirby accepted the post of Assistant Naturalist in the Museum of the Royal Dublin Society, afterwards the National Museum of Science and Art, his fellow-assistant being A. G. More, the well-known botanist and ornithologist. It was in 1867 that Kirby's only son was born. During this time articles from his pen on entomological subjects continued to appear, not only in the entomological journals, but in such papers as the *Irish Farmers' Gazette, Saunders' News Letter, The Gardener's Record*, etc.

In 1871 his great work, *A Synonymic Catalogue of Diurnal Lepidoptera*, appeared, and at once made him famous. In 1877 he published his *Supplement* to this Catalogue. The next work of importance he produced was *European Butterflies and Moths*, which appeared in monthly parts from 1878 to 1882, and has been several times reissued. The most recent edition, under the name *Butterflies and Moths of Europe*, was published from 1902 to 1904.

On the death of W. C. Hewitson, in 1878, W. F. Kirby was asked to prepare the Catalogue of his famous collection of Butterflies which Hewitson had bequeathed to the British Museum. This necessitated a

* *Ent. Week. Int.*, Vol. I., p. 91 (1856). W.K. announces the discovery of the full-fed larvæ of *Orgyia gonostigma.*—(H.J.T.)

stay at Mr. Hewitson's delightful house and grounds at Oatland's Park. Here Mr. Kirby was visited by Mr. Hewitson's old friends Sir William Armstrong, John Hancock, H. Grose-Smith, and S. Stevens, and many a pleasant afternoon was spent by these naturalists in fishing for tench, bream, and eels in the Broad Water. From 1869 to 1884 W. F. Kirby contributed the annual reports on Lepidoptera for the *Zoological Record*, and afterwards the greater part of the Insecta. This necessitated his acquiring a knowledge of various European languages such as Dutch, Swedish, Danish, Spanish, Portuguese, and Russian.

In 1879, on the death of Frederick Smith, Kirby was transferred from Dublin to the Zoological Department of the British Museum, a post which he held until his superannuation in January, 1909. At first, on his return to England, Kirby resided in the north of London, and was an intimate friend and neighbour of Edward Clodd, H. W. Bates, and H. G. Knaggs. On the removal of the Zoological Department to South Kensington, he came to live in Chiswick, and was a neighbour of Dr. Bowdler Sharpe, with whom he made a tour to Norway in 1901.

At the British Museum Kirby ceased to work officially at Lepidoptera, and took up the orders Hymenoptera, Orthoptera, etc. In 1882 he published his *List of Hymenoptera Tenthredinidae and Siricidae in the Collection of the British Museum*, and in 1883, *Evolution and Natural Theology*. In 1885 appeared his *Textbook of Entomology* (2nd edition 1892); in 1885 the *Young Collector Series British Butterflies, Moths, and Beetles;* 1887 to 1897, in conjunction with H. Grose-Smith, *Rhopalocera Exotica* (2 vols.); in 1889, *A Natural History of Mammals, Birds, Reptiles, etc.* (3 vols.).

In 1890 *A Synonymic Catalogue of Neuroptera, Odonata, or Dragonflies* was issued, followed, in 1892, by his great *Synonymic Catalogue of Lepidoptera-Heterocera or Moths: Sphinges and Bombyces*, on which he had been working for a number of years. Want of sufficient support prevented this monumental work from being continued, or it would have run to some five or six other volumes. The shell of the work was complete up to 1892. The *Handbook of Lepidoptera*, 5 vols., was issued from 1894 to 1897, followed by *Marvels of Ant Life* in 1898, *Familiar Butterflies and Moths*, 1902, *British Flowering Plants*, 1906, *Mammals of the World*, 1907, and *Synonymic Catalogue of Orthoptera in the Collection of the British Museum*, 3 vols., 1904, 1906, 1910, as well as numerous contributions to Entomological and other journals which appeared from time to time. All this while W. F. Kirby was writing books and papers on various branches of Literature and Poetry, as well as on Mysticism and Philosophy. He was a Fellow of the Linnean and Entomological Societies, to the latter of which he was Honorary Secretary for some years.

Kirby was fond of travelling and generally spent his holidays abroad. He had thus visited Scotland, France, Holland, Belgium, Switzerland, Italy, the United States and Canada, and always started on his travels armed with a butterfly net and collecting box. His last holiday, in August of this year, was spent with his son and grandsons in Germany and Austria.

His genial kindliness, tact, and quiet amiability, together with his never tiring assistance to all who required help or counsel, endeared him to a large circle of friends and acquaintances, whilst the world

will be the poorer for the vast amount of work which, at the age of 68, he was still prepared to give it from his prolific brain.

William Forsell Kirby died on November 20th, at his residence in Chiswick, after a short illness. He was buried in Chiswick Cemetery on the 26th, being attended to the grave by a large gathering of sorrowing friends.—W.E.K.

Arnold Wullschlegel.

The last of the well-known lepidopterists of the Rhone Valley has been removed by the death of Arnold Wullschlegel, at Martigny, on November 18th, on his 63rd birthday. His death will not have come as a surprise to any of his friends, since more than two years ago he was afflicted with three strokes of paralysis within a fortnight, after the last of which he never spoke again, though he retained his intellect unimpaired. He is best known as the collaborator of the late Chanoine Favre in the "Macro-Lepidoptera of the Valais," but having bred an immense number of species from the egg, he had naturally acquired vast stores of knowledge of their early stages, much of which will in all probability be lost to the world. He leaves a widow who for many years has shared his entomological labours, and though she has so far published nothing, it is possible that through her means some part of this hardly-acquired knowledge may be preserved for the service of future generations.—G. W.

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SPECIAL INDEX.

By T. HUDSON BEARE, B.Sc., F.R.S.E., F.E.S. (Coleoptera); M. BURR, D.Sc., F.Z.S., F.E.S. (Orthoptera); J. E. COLLIN, F.E.S. (Diptera); and H. J. TURNER, F.E.S. (Hemiptera, Hymenoptera, Lepidoptera, etc).

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CORRIGENDA, &c.

p. 5, l. 29, for "Cavora" read "Cavara" and for "*formicorum*" read "*formicarum*."
p. 6, l. 2, for "Myrmecocorous" read "Myrmecochorus."
l. 21, for "*Dolidoclerinae*" read "*Dolichoclerinae*."
p. 7, l. 10, for "Hübner" read "Hüber."
l. 33, for "strong" read "stony."
p. 8, l. 17, for "*fusca*" read "*fusco*."
p. 12, l. 13, for ♀ read ♂.
l. 46, for "*dahpne*" read "*daphne*."
p. 86, l. 14, for "*Pyrale*" read "*Pyralis*."
p. 103, l. 9, for "*Pieris napi*" read "*Epunda nigra*."
p. 118, etc. for "*Hirsutina dolus*" read "*Hirsutina dolus* var. *vittata*."
p. 133, l. 41, for "*Tortrix*" read "*Tortricodes*."
p. 135, l. 11, delete "*Phytometra*."
p. 138, l. 15, for "*Melenydris*" read "*Malenydris*."
p. 158, l. 34, for "*alticolor*" read "*alticola*."
p. 166, l. 38, for "*alinaria*" read "*aluiaria*."
p. 167, l. 2, for "*Platyptila*" read "*Platyptilia*," for "*monodactylus*" read "*monodactyla*."
p. 177, l. 11, for "*sylvana*" read "*sylvina*."
p. 219, l. 49, for "*Rhyaciona*" read "*Rhyacionia*."
p. 236, l. 20, delete "*Phytometra*."
p. 244, l. 20, add "s" to "discoloration."
p. 246, l. 9, delete "costa" (twice) and insert "inner margin" (twice.
p. 278, l. 32, for "*coeruleopuuctata*" read "*coeruleopunctata*."
p. 294, l. 10, for "*balcanicus*" read "*balkanica*."






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